

The IRON AGE

Contents p. 2

THE NATIONAL METALWORKING WEEKLY September 29, 1949

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quality made
to your
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These precision-cut gears provide quieter, more efficient speed reduction and longer life.

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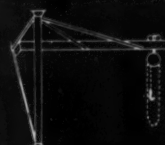
Heavy-duty anti-friction bearings throughout provide an easy running crane with lower maintenance.



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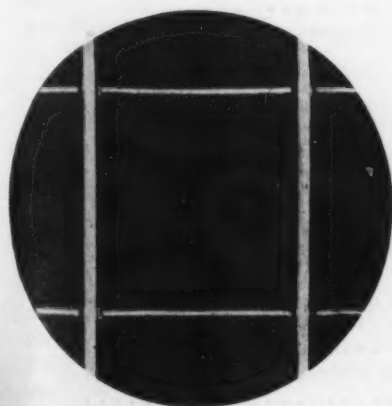
LIGHT
CRANES



One of the welding machines engineered by Forbes Steel Corporation, Canonsburg, Pa. Bethanized wire is fabricated into strong, uniform fabrics by electronically-controlled welding.

Welded Fabric made of *BETHANIZED WIRE*

for smooth, bright finish
... extra corrosion-resistance
... sound, clean welds



This close-up view of 1 x 1-in. mesh shows the neat welding job. The excellent metal-to-metal bond between the bethanized wires produces a strong, corrosion-resisting joint that is clean and free from discoloration.

Forbes Galvanized Wire Fabric, made by Forbes Steel Corporation, Canonsburg, Pa., for a long list of uses from machinery guards to poultry-coop flooring and corn-cribbing, is another of the many products that owe much of their popularity to bethanized wire.

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Whether you need hard- or soft-temper wire, standard or heavy zinc coatings, we'd like to show you how bethanized wire can add sales appeal to your products.

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THE IRON AGE

Editorial

INDUSTRY VIEWPOINTS

Truce or Threat

FORTUNATELY for the future relations of management and labor the social insurance and pension demand was being talked about last week and early this week over the bargaining table. We say fortunately because the White House or the government is no vehicle to settle differences between employers and employees. We hope that we have seen the last trip to the government for a while on the steel pension question.

There was one fly in the ointment last week. Steel firms were and had been willing to use the Steel Board's report as a guide for collective bargaining. In fact the report itself says that very thing should be done. But there is nothing in the report that says steel people must agree beforehand to the board's recommendations.

Even after the President made his appeal for a second strike postponement and both sides replied in words similar to those of the President's telegram, Mr. Murray again threatened all steel firms with a strike unless they agreed to accept the board's report.

It seems that Mr. Murray is being ill advised these days. He is losing far more than he is gaining with the public and with management. He agreed with Mr. Truman that the union would start bargaining to attempt a mutually satisfactory agreement. But in talking to reporters he left no doubt that he would seek a complete acceptance of the board's report from steel firms or strike them. That is not collective bargaining in any sense of the word.

The time has come to cut out all this roaring around about what we will or won't do. The country is tired of it and looks to Mr. Murray to sit down at the bargaining table and argue out the problems.

It was only a few years ago that Mr. Murray, U. S. Steel and other firms entered an era of good feeling. Recent events have strained that relation. We hope it will be restored. But no man or group of men can stand being insulted and accused of bad faith and still continue to go more than half way. The whole question of pensions is not something that can be settled with a 6 or 7-day threat hanging over the heads of management. Yet management has gone to the collective bargaining table with just that—a threat that their plants will be closed if they don't agree beforehand to what they are supposed to be bargaining about.

We still think that a steel strike will be averted. And we are of the firm opinion that steel people are doing everything they can to reach an agreement they can live with. A truce is bad enough to work under. A threat is worse.

Tom C. Campbell

Editor

no second-fiddle role today



NEWSFRONT

NEWS, METHODS AND PRODUCT FORECAST

► Paint designed especially to withstand tropical climates is on the way. The Army, after 6 years of tests, has developed a new compound that may prove to be a major development in the paint and protective covering industries.

A wooden slab covered with barn paint containing the new compound survived 3 months' exposure in a tropical test chamber while a slab covered with ordinary paint was almost destroyed in the same time.

► Government officials are quietly urging local authorities to step up public works planning, feeling that private financing will be unable to hold 1950 construction at the levels attained during the past 2 years. Only sharply increased public building is holding the line this year in an industry that directly employs 3 pct of the work force.

► By the end of 1950 at the latest, two and probably all three of the Big Three car makers will have self-shifting devices. When this happens, the experts say that no car selling at a higher price will be able to compete without one.

► Consular information indicates a decreasing foreign market for U.S.-made closures and containers, including tin cans. Canada and Mexico, for instance, are expanding domestic production with American-made machinery. Last year's export drop was 13 pct.

► Wall Street, long skeptical of steel company stocks, is a little surprised at the fairly substantial purchases of stock of a leading sheet producer by a New York insurance company.

► British engineers are raising their sights on gas turbine engine design. The Rolls-Royce Avon axial flow turbojet is already giving 7500 lb static thrust. British jet-pipe reheat equipment has been able to add as much as 50 pct to the power of a turbojet engine.

► Since the war the U. S. has handed out to other nations more than \$10 billion in loans and credits. This does not include Marshall Plan aid as such, nor payments of over \$3.3 billion to the International Bank and International Monetary Fund.

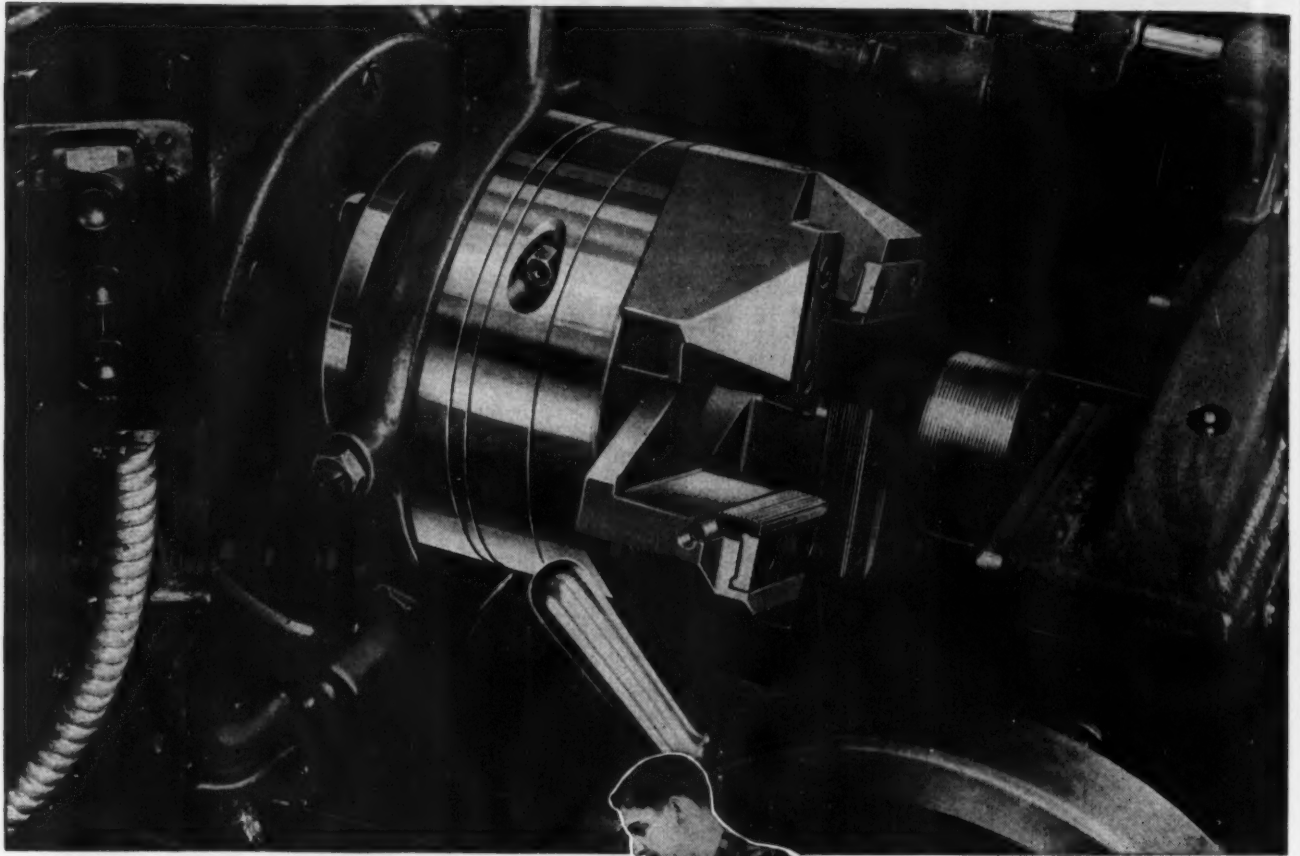
► According to union estimates, some 20,000 salaried workers in steel companies are organized. On this basis about 70,000 are not. But based on past experience the odds are that, organized or not, all salaried steel company employees will share in any gains which production workers may win.

► Recent research on the embrittling effect of phosphorus shows that molybdenum will counteract this loss of toughness. In chromium alloy steels, molybdenum can be substituted for part of the chromium to give equivalent hardenability and for the same phosphorus content the steel will have much better impact properties.

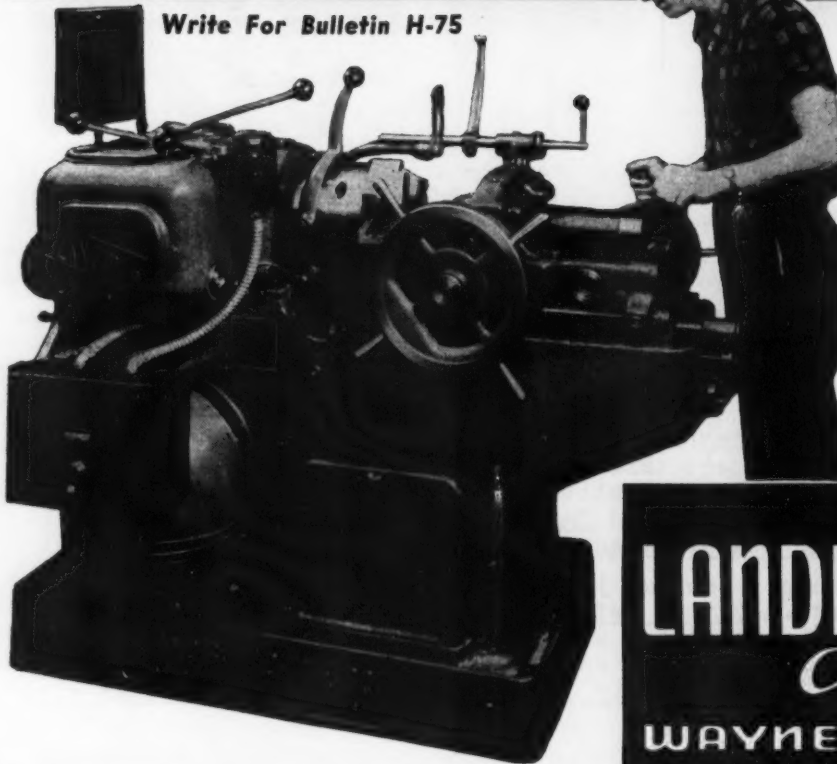
► A new metal polishing technique just announced by Battelle Institute engineers puts a bright reflective surface on metals such as brass, copper, Monel, nickel and aluminum by treatment in a bath containing acids. Intricate shapes can be polished and no electricity is used. Reductions of up to 50 pct in some finishing costs are reported.

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Steel and Union Near on Money

Atomic Race Should Smooth Talks

Steel Demand Continues Strong

The Iron Age

SUMMARY

IRON AND STEEL INDUSTRY TRENDS

IN dollars and cents, steel firms and the union were not far apart as they resumed negotiations this week. And it is possible that two new factors may somehow seep into the bargaining sessions and tend to reduce the chances of a strike. These are positive knowledge that an atomic bomb race is on and devaluation of the British pound.

Most steel companies are willing to give 4¢ an hr for social insurance; a few have offered 6¢ an hr for pensions and none has flatly rejected the possibility of a 6¢ per hr pension payment or argued that employees should match the company contribution. As steel workers grew restless in some areas the solution needed was a compromise on the contributory vs. non-contributory issue.

Industry Is Going a Long Way

If major steel firms agree to pay a total of 10¢ they will have come much further than was first thought. Phil Murray was said to be afraid the rank and file would balk at any payment beyond the 4¢ and 6¢ because of lowered take-home pay. In the last analysis it would not be surprising to see some steel companies agree to put 4¢ and 6¢ provided workers paid a cent or two on insurance and from 1¢ to 3¢ on pensions. There was even a possibility—but no more than a possibility—that the board's figures might be met, with some kind of ironclad qualification attached that would allow steel firms to retain their stand on a contributory plan.

Despite restlessness of some union members and a mild rash of wildcat strikes, few of the rank and file realize that if pensions are agreed upon they will not be payable until April 1950.

It is also possible that the significance of Russia's possession of the atomic bomb might seep into the negotiating sessions this week. In the face of an urgent need for cooperation, steady output and a healthy economy this could be the agreement clincher. In the past few days public opinion has turned its interest from such things as labor troubles to the seriousness of the atomic

bomb race. It is certain that government pressure to avert a tieup will be intensified as soon as it becomes clear that a steel strike would be a threat to national defense.

Devaluation Should Prove Incentive

British devaluation of the pound should prove an added incentive to settle domestic labor disputes quickly. A work stoppage now would cut into iron and steel exports and part of the business would be lost to European competitors. It might be hard to get back.

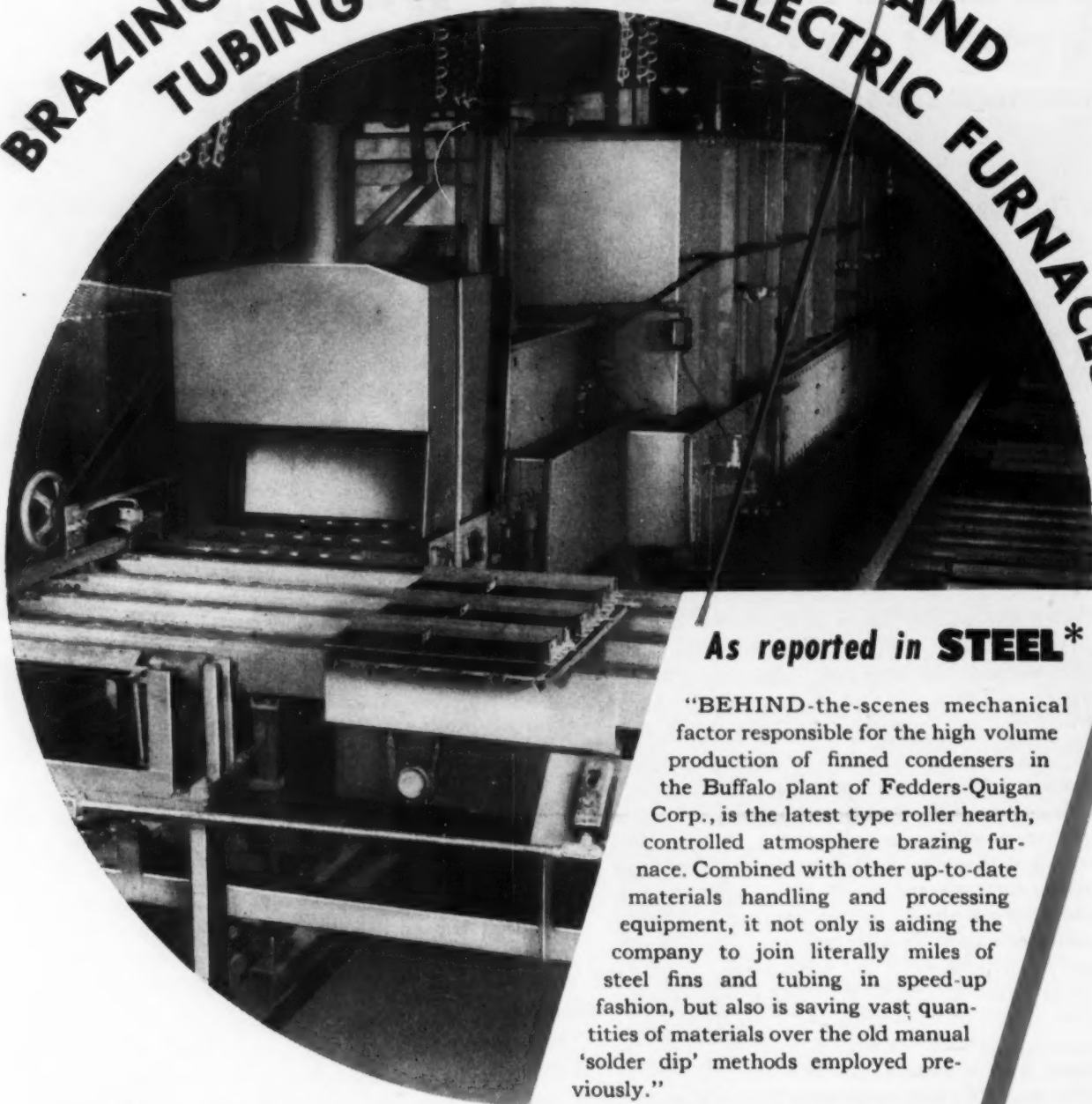
Steel producers who had feared the present high level of customer ordering was primarily hedging against a possible steel strike are beginning to wonder whether their qualms were justified. Their customers are telling them that the strike threat doesn't have much bearing on the situation, that the fact of the matter is their business has picked up and they need steel. This applies to automotive business, oil country goods, construction, household appliances, kitchen cabinets, and so on. So producers are more optimistic that demand will continue to hold up and that there will be no wholesale cancellations if and when the labor dispute is settled peaceably.

Coal Strike Cutting Buying Power

The coal strike has them worried, however. They point out that the walkout with its resultant loss of purchasing power for the 480,000 coal miners and employees of railroads and other dependent industries who have been thrown out of work could conceivably reverse the present trend. There is always the chance, too, that the strike will last long enough to affect the steel producers themselves.

Scrap prices generally marked time during the past week though a few markets moved up into balance with last week's advances elsewhere. THE IRON AGE steel scrap composite moved up 50¢ based on a rise at Philadelphia to \$27.92 per gross ton. Steel ingot operations in the nation's mills were tentatively set at 84.5 pct of rated capacity, a figure which will not be reached if the labor picture is not clear before Thursday.

BRAZING MILES OF STEEL FINNS AND TUBING WITH G-E ELECTRIC FURNACES



As reported in **STEEL***

"BEHIND-the-scenes mechanical factor responsible for the high volume production of finned condensers in the Buffalo plant of Fedders-Quigan Corp., is the latest type roller hearth, controlled atmosphere brazing furnace. Combined with other up-to-date materials handling and processing equipment, it not only is aiding the company to join literally miles of steel fins and tubing in speed-up fashion, but also is saving vast quantities of materials over the old manual 'solder dip' methods employed previously."

"Automatic Brazing Speeds Output of Steel-Finned Condensers" by Jay DeEulis, Engineering Editor, in STEEL, February 7, 1949.

General Electric builds electric furnaces and associated equipment for practically every industrial heat-treating process. For more information on G-E Furnaces or on G-E Induction and Dielectric heating equipment, consult the nearest G-E office; an Industrial Heating Specialist will be glad to make specific recommendations for your particular job or write to Apparatus Dept., Sect. 720-3, General Electric Co., Schenectady 5, N. Y.



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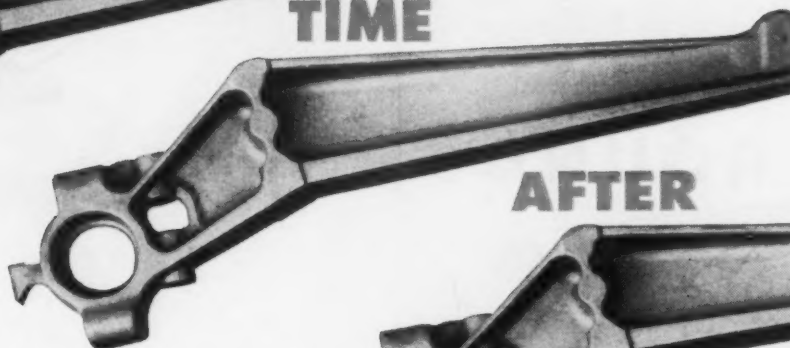
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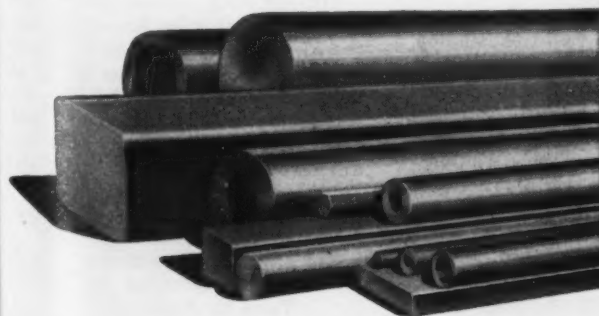
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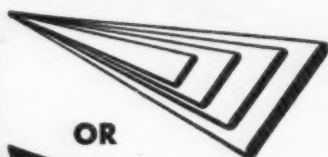
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Stainless Steel WIRE

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In Business for Your Safety



Fatigue Cracks

By Charles T. Post

Who? Us?

Your favorite family journal, good natured old thing that it is, has been taking an abnormal amount of gratuitous kicking around lately.

Despite her 94 years, the old lady still has a modicum of ill concealed vanity left. Therefore one of the newspaper clipping services has standing orders to gather all newspaper mentions of "Iron Age" at a stated price per clipping. This usually provides ample testimony that the words of wisdom uttered by the brains department fall on fertile ground in the daily press.

Last week the clipping service turned in its usual bulging envelope of Iron Age press mentions, with the following item from the Hartford Courant on top of the stack:

ALWAYS THE GOAT

The goat was the earliest known domesticated animal, traced to the Iron Age. Wherever people traveled, the goat went along giving food (milk and cheese), clearing land (eating greens), providing companions for children, and supplying skin for clothing and meat.

This account of the goat would seem to make it a real life Schmoo, rendering superfluous L'il Abner, the atom bomb, and other trappings of modern civilization. In this sense, tracing the goat to your f.f.j. is, we judge, sort of a left-handed compliment. On the other hand, the goat has certain other attributes which, thanks to liberal applications of journalistic Mum, Listerine, and Old Spice talcum, your favorite family journal disowns.

If the clipping bureau submits a bill for this item, it will prove, of course, that your f.f.j. is the goat, waiting patiently to be clipped.

Renown

Your favorite family journal's fame, broadcast 'round the world, occasionally is slightly garbled in transmission. This morning's mail had an air mail letter from the Colony Mills Stores Co. of Karachi, Pakistan, asking for a sample copy of "your magazine 'The Iron Gate'" along with subscription and advertising rates and sources of supply for cotton driving ropes; ball and roller bearings; white, gun, and brass metals; rubber, hair and leather beltings; oil engines; and anhydrous ammonia.

That the post office department should pant unerringly up to our door with a missive addressed to the "Iron Gate" is in itself ominous. The real Iron Gate, our geography shows, is a short, churning gorge of the Danube between Yugoslavia and Rumania. It's been a magnet for international brawls throughout history, and at the moment would scarcely seem a spot to recover from a nervous breakdown.

Having such revered institutions as the Colony Mills Stores Co. and the U. S. Post Office confuse your f.f.j. with the Iron Gate seems to point to trouble around here. We feel giddy at the implication and are reaching immediately for the anhydrous ammonia, if that's the kind you sniff.

Omniscient

The reader service department has been pretty smug lately over

Turn to Page 111

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1 POUND**

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OVER
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POUNDS**

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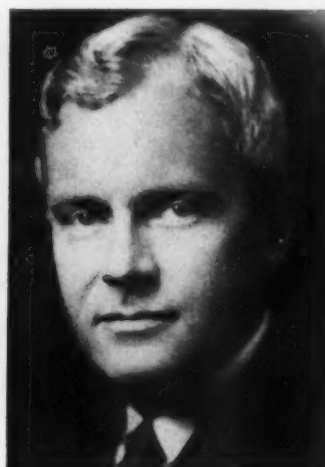


September 29, 1949

Iron Age *Introduces*



PHILIP T. COFFIN, manager of pig and ingot sales and warehouse divisions, Aluminum Co. of America.



DR. PAUL MERICA, director, Babcock & Wilcox Co.



RALPH C. MARK, comptroller, General Motors Corp.

Philip T. Coffin has been named manager of pig and ingot sales, and manager of the warehousing division for the ALUMINUM CO. OF AMERICA, Pittsburgh. Mr. Coffin joined Alcoa in 1926, and was made assistant manager of the company's New York sales office in 1945. Mr. Coffin succeeds **Hugo T. Wilder**, recent manager of the company's newly created marketing division.

Darwin E. Hachat, former general foreman of the power division, has been promoted to superintendent of power at the Indiana Harbor plant of the YOUNGSTOWN SHEET & TUBE CO., Youngstown.

E. J. Cremer has been appointed manager of the new sales and engineering office of the BINKS MFG. CO., New York.

Dr. Paul D. Merica has been elected a director of the BABCOCK & WILCOX CO., New York. Dr. Merica is the executive vice-president of the International Nickel Co. of Canada, Ltd.

Elmer J. Mlinar has been appointed assistant works manager of the Stamford Div. of the YALE & TOWNE MFG CO., New York. He was previously general plant manager of the Kindt-Collins Co. and general plant manager of the Houma Div. of Weatherhead Co.

S. J. Woodworth has been appointed sales manager of the Wright Hoist Div. of AMERICAN CHAIN & CABLE CO., INC., Bridgeport, Conn., with headquarters at York, Pa. Mr. Woodworth succeeds **A. R. Haskins** who is resigning from the company to establish a business in Milwaukee.

Ralph C. Mark has been elected comptroller of GENERAL MOTORS CORP., New York. He succeeds the late **R. E. Hammond**. Mr. Mark joined the corporation in 1931 as a traveling auditor. **Henry C. Alexander** has been elected a member of the board. He is executive vice-president of J. P. Morgan & Co., Inc. **Richard C. Gerstenberg** has been appointed assistant comptroller on the central office staff at Detroit, with which he has been associated since 1936.

Milton O. Lange, formerly special sales representative for Joseph T. Ryerson & Son, Inc., New York, has been appointed manager of plate product sales for the FITZGIBBONS BOILER CO., INC., New York. Mr. Lange will be in charge of planning and sales of special industrial steel fabricated products.



A. J. ALLEN, general sales manager, Coast Metals, Inc.

A. J. Allen has been appointed general sales manager of **COAST METALS, INC.**, Canton, Ohio. Mr. Allen was formerly president and sales manager of Eastern Carbide Corp., New Rochelle, N. Y., while previous to that, he served with the National Tube Co. and also the Sterling Steel & Carbide Corp.

Stanley P. Bayless has been named director of staff sales, **THOMPSON PRODUCTS, INC.**, Cleveland. He has served as sales manager of the company's aircraft division since 1945 and in his new capacity will assist in the development and coordination of original equipment sales policies.

R. A. J. Wellington has been appointed national sales manager of **PRECISION METALSMITHS, INC.**, Cleveland. Previously Mr. Wellington was in charge of Precision's home-office sales.



HOMER F. BOOKSTAVER, factory superintendent, International Business Machines Corp.

Thomas J. Watson, president of **INTERNATIONAL BUSINESS MACHINES CORP.**, New York, since 1914, was elected chairman of the board, chairman of the executive and finance committee and chairman of the board of the IBM World Trade Corp. **John G. Phillips**, formerly executive vice-president and director, was named president and **Thomas J. Watson, Jr.**, formerly vice-president and director, was appointed executive vice-president. **Dause L. Bibby** was elected vice-president with headquarters at Endicott, N. Y. and **William L. Lewis** has also become a vice-president. **Charles F. McElwain**, factory superintendent, was promoted to works manager and **Homer F. Bookstaver** to factory superintendent.

J. R. Steele has been made St. Louis representative for the **MIDVALE CO.**, Philadelphia and **W. L. Van Winkle** has been appointed representative in Houston. The jurisdiction of **A. R. Gaus**, district sales manager, Pittsburgh, has been extended to cover the Cleveland district, and he will be assisted by **J. W. Baer** and **F. N. Satter**. **A. Richter**, former salesman in the New York district, has been transferred to the Washington office under the supervision of **R. H. Romig**.

E. O. Howard has been made sales engineer for the Grinder & Titan Abrasive Div. of the **CHARLES H. BESLY & CO.**, Chicago, with territory including northern Illinois. He was formerly manager of the Buffalo territory for the same company.



CHARLES F. McELWAIN, works manager, International Business Machine Corp.

W. M. Griffith has been named district manager of the southern area, Pacific Coast territory, of the Superior Engine Div. of the **NATIONAL SUPPLY CO.**, Springfield, Ohio. Mr. Griffith had previously served as sales head for the Atlas-Imperial Diesel Engine Co., San Francisco.

James C. Hartley has been appointed staff executive at **WINCHESTER REPEATING ARMS CO.**, division of Olin Industries, Inc., New Haven, Conn., where he will handle special assignments for the regional manager. Mr. Hartley was formerly vice-president and general manager of Barium Steel & Forge, Inc.

Roger H. Dowling has been named to fill the newly created post of general service manager for the **YORK CORP.**, York, Pa. Mr. Dowling came to the York organization in 1928, when he entered the York Student Training Course, and for 6 years has been general sales manager for the corporation.

H. J. Hanbury has been named to the newly created post of sales manager of photographic lamps and Christmas tree bulbs for the Lamp Div. of **WESTINGHOUSE ELECTRIC CORP.**, Bloomfield, N. J. Mr. Hanbury managed the Newark sales area from 1938 to 1944 and has been in New York ever since. **Willett R. Wilson** has been appointed advisory engineer handling photographic

Turn to Page 100

DEAD SOFT... AND EASY ON YOUR WIRE WORKING MACHINES

WISSCO SPHEROIDIZED WIRE

Steel with this grain structure resists forming and is tough on wire working tools and dies.

Spheroidizing changes the free cementite in steel from elongated shapes to small nodules or spheroids thus rendering the steel soft and ductile.

Here's a wire that is really friendly to forming dies and wire working machines. It's dead soft... takes severe bends beautifully... is easy to cut, swage, grind and polish. After forming, its temper or hardness can be restored.

Because of these characteristics, Wissco Spheroidized Wire is ideally suited for making screw drivers, awls, ice-picks, parts of toys and other products the manufacture of which calls for severe wire forming.

The secret of the superiority of Wissco Spheroidized Wire lies in the use of specially selected heats of steel and exacting control of the heat treating operation to insure complete and uniform heating of each batch of wire.

If you want further information on Wissco Spheroidized, or any of Wickwire Spencer's innumerable types of high or low carbon steel specialty wires, won't you write us? Our metallurgists have a reputation for finding the answers to unusual wire applications.

WISSCO Wire

A PRODUCT OF WICKWIRE SPENCER STEEL DIVISION • THE COLORADO FUEL AND IRON CORPORATION

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PACIFIC COAST SUBSIDIARY—THE CALIFORNIA WIRE CLOTH CORP. OAKLAND 6, CAL.





BULLARD

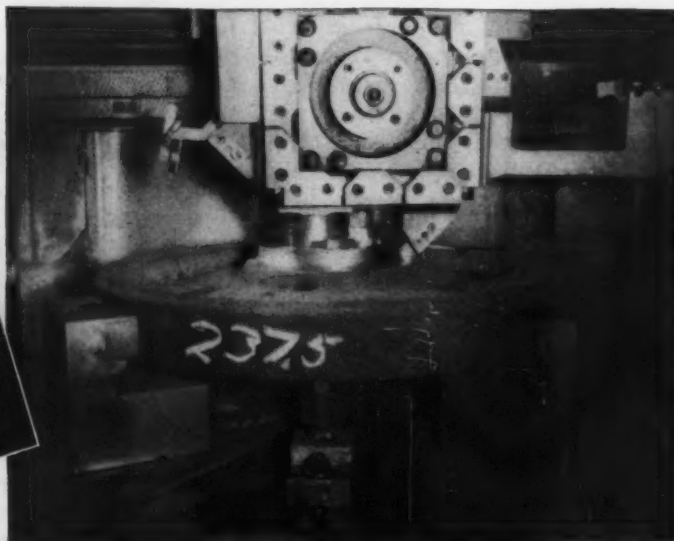
MAN-AU-TROL

Boosts Diesel Wheel Production 200%

THE greater use of Diesel-Electric power in freight and passenger service has placed an exceptionally heavy demand on the shops for Diesel wheels. This demand must be fulfilled without delay because Diesel motive power is too costly to be held out of service for wheels. Availability of this equipment must be kept high for greatest economy. Here is the way the Boston and Maine Railroad solved this problem. A Bullard 54" Man-Au-Trol Vertical Turret Lathe was installed in the North Billerica, Massachusetts, shops. This machine has tripled the production and improved the accuracy of boring and turning Diesel locomotive wheels over the previous 54" Bullard Vertical Turret Lathe.

The accuracy of this class of work cannot be matched by manual operation. Tool wear is even compensated for by manual micrometer adjustments of Man-Au-Trol detector switches.

You should know all about the Bullard Man-Au-Trol to appreciate all it can do to lower unit costs and "pep-up" machining schedules. Write for information today.



AGE THE BULLARD COMPANY



GLOBAL LETTER

REVIEW OF WORLD MARKETS

**Britain devaluates currency to compete in world markets
... Belgian exports to the U. S. shrink ... Swiss seeking
cost reduction in electric smelting process.**

London — Britain has finally taken the plunge. She has devalued her currency by 30 pct. Financial experts and economists had long been yammering that this must be the first step in any program aimed at enabling her to pay her way. But the secret was well kept, even though advance talks had been held with various parts of the Empire as well as with Washington.

Immediate reaction here was varied. Most seemed to think it was a proper step to take. But many were worried about the cost of living. As a result of the move the cost of living is expected to increase gradually about 5 or 6 pct. In spite of this the government appears determined to block further wage increases. This will probably mean more austerity for the housewife.

Will Help Exports

Many were surprised by the extent of the devaluation. The pound sterling, which had been pegged at \$4.03, is now worth only \$2.80 in the world markets. Sir Stafford Cripps, chancellor of the exchequer explained this by saying that they wished to establish a ratio that could be held.

Obvious aim of the move is to stimulate exports to earn more

dollars. However, very few items are expected to be reduced the full 30 pct on the export market. Prices of some items will undoubtedly be cut more than others. Goods which are selling well may not be reduced in price at all—or at least not until the need arises.

Several other countries have followed Britain's devaluation move. The result will be that European exports will be more competitive, not only in the U. S., but also in all markets where they must compete with U. S. exports. Sterling area prices will now be generally lower instead of higher than dollar prices.

Swiss Want Steel Industry

Geneva—The idea of a Swiss national iron and steel industry based on use of home ore has its supporters. Although Switzerland is not blessed with a good fuel supply, she does have ample electric power. The Fricktal iron ore field also has substantial reserves of ore of good grade.

Before the war iron ore was mined and shipped to Germany in exchange for pig iron and steel products. Since the war ore has been smelted in the electric fur-

naces of the Roll Steelworks at Choindex. They could also be smelted in the furnaces of the Gerlafingen steelworks.

The Fricktal mining is done by Jura Bergswerk A. G. This company has bought land on which an iron and steel plant could eventually be erected. Such a move is probably dependent on cost reduction in the electric smelting process.

Belgian Exports to U.S. Shrink

Brussels—Exports of iron and steel products from Belgium to the U. S. have been steadily shrinking. During July they were only 1 pct of the amount exported 6 months ago. Belgian exports to the U. S. in metric tons during recent months were as follows:

February	50,636,000
March	37,174,000
April	8,353,000
May	2,875,000
June	1,084,000
July	557,000

Brazil Keeps Tabs on Minerals

Sao Paulo—The National Dept. of Mineral Production, DNPM, is now being equipped to carry out with more precision regulations governing mineral exports. A special section is being created to compile complete data of production and exports, including quantities, prices and destinations.

One of the objects of the new section is to guarantee the quality and quantity of materials shipped in the interests of foreign buyers.

Look at these COST-CUTTING FEATURES of the New NORTON Type CTU Cylindrical Grinders

Compare Them With Your Present Equipment

Here are 17 of the reasons why you'll like the new Norton line of 6" and 10" cylindrical grinders—17 features that give new ease of operation and new ease of maintenance.

Compare these features with your present equipment. You will see how new efficiencies can be achieved with Norton CTU's that will give you the lower grinding costs so essential today.

New Features—New Catalogs

The outstanding features of these new Norton Grinders are graphically illustrated and described in a new series of catalogs. Write for any or all—no obligation.

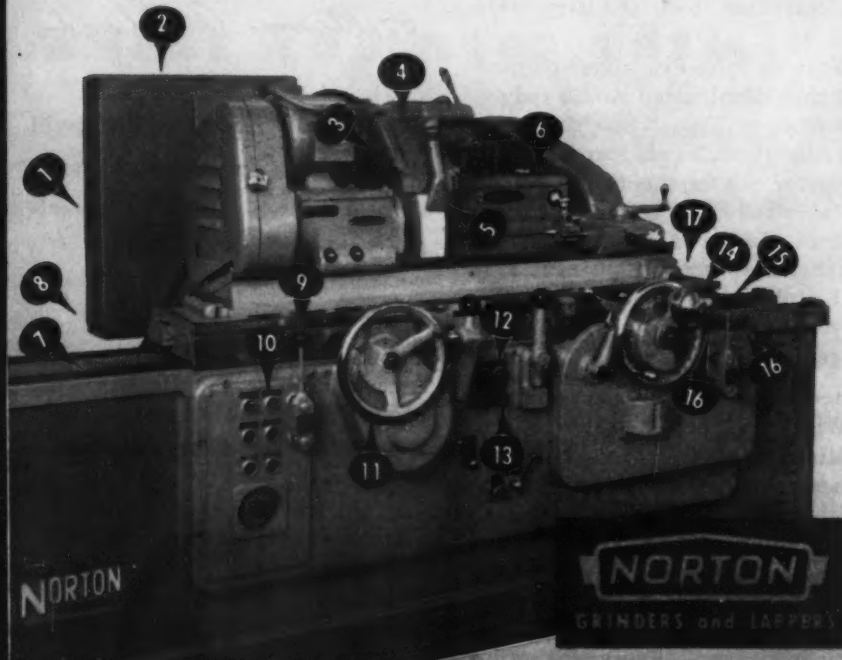
Catalog 157-2—Norton 6" Type CTU Cylindrical Grinders.

Catalog 1488-1—Norton 6" Type CTU Semiautomatic Cylindrical Grinders.

Catalog 166-2—Norton 10" Type CTU Cylindrical Grinders.

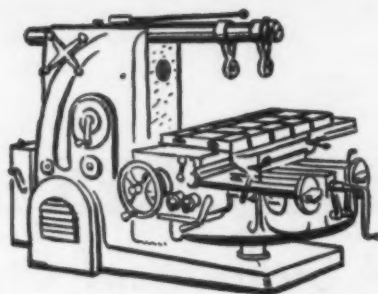
Catalog 1787-1—Norton 10" Type CTU Semiautomatic Cylindrical Grinders.

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- 2 Stand-Up Electrical Controls Mounting
- 3 Swing-Back Wheel Guard Cover
- 4 Mist-Control Hinged Hood
- 5 Easy-Swing Nozzle Mount
- 6 The Famous NORTON Wheel Spindle Unit
- 7 Space-Saver Ribbon Type Base Way Guards
- 8 Quick-Clean Coolant Ramp
- 9 Feather-Touch Work Jogging Lever
- 10 Finger-Tip Automatic or Manual Work Rotation Selector
- 11 Silky-Sure Hand Table Traverse
- 12 Quick-Action Pre-Set Truing and Grinding Speed Control
- 13 Either-End Table Dwell Control
- 14 No-Search "Click-Count" Wheel Feed Mechanism
- 15 "One-Lever" Grinding Cycle Control for Semiautomatics
- 16 Instant-Action Automatic Feed Rate Controls
- 17 Knee-High Hydraulic and Lubricating Pump Mounting



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MACHINE TOOL

High Spots

SALES, INQUIRIES AND PRODUCTION

Cleveland—Devaluation of the British pound in the short term view, which is another way of saying the next 3 to 6 months, poses a serious foreign sales problem for U. S. machine tool builders, spokesmen for major segments of the machine tool industry said this week.

Foreign sales executives pointed out that devaluation would reduce the price of British machine tools here by about 30 pct, provided the importer passes the full effect of devaluation along to the customer, and raises the price of U. S. machine tools on the Continent and in Britain by a like amount, as the buyer has to pay about 30 pct more for his dollars.

Price Is Not Only Criterion

With a 15 pct import duty on British machines (and it could conceivably be cut to 7½ pct) the British machine tool builders have, at the moment, a very attractive commercial position.

Thus, if a customer buys on the basis of price, the British will get some business. Delivery and availability are expected to enter in, however. Also, many European customers started with U. S. machines, and are setting up their

by

William A. Lloyd

Devaluation means British will get more orders though many Europeans will still buy American tools.

manufacturing operations on the American plan, and thus will probably continue to buy U. S. machines despite the price differential.

Devaluation has not run its full course, particularly on the Continent, according to foreign sales executives. For the next 6 months, they feel it is not likely to go beyond 30 pct, which will be the average.

Less Effect on Special Units

"Some machine tool companies may not be able to get dollars for

some of the orders now on their books," a trade source pointed out. "Other segments of the industry, however, got wind of the devaluation in advance and got dollars in on everything that was anywhere near to closing."

Pound devaluation will undoubtedly hit hardest builders of standard machines. Builders of highly specialized machine tools may get off a little easier.

Reason is that a large proportion of the specialized equipment being sold overseas is bought with Marshall Plan dollars. In other instances, the producers of such equipment have already made arrangements to have their equipment produced under license in countries that are members of the sterling bloc.

NMTBA Reports on Orders

In Cleveland, new orders and shipments of machine tools in August increased from July, but were substantially under August, 1948 levels, according to a preliminary report of the National Machine Tool Builders Assn.

NMTBA's index of August orders was 51.4 compared with 48.0 in July and 73.7 in August, 1948. The index of shipments rose to 68 compared with 60.7 in July and 69.8 in August, 1948.

The index of new foreign orders, which are included in the total, rose to 18.7 from 14 in July and 13.6 a year ago. The industry's backlog of unfilled orders dropped to 3.7 to 1 from 4.4 to 1 in July and 5.2 to 1 in August, 1948.

Detroit Is More Optimistic

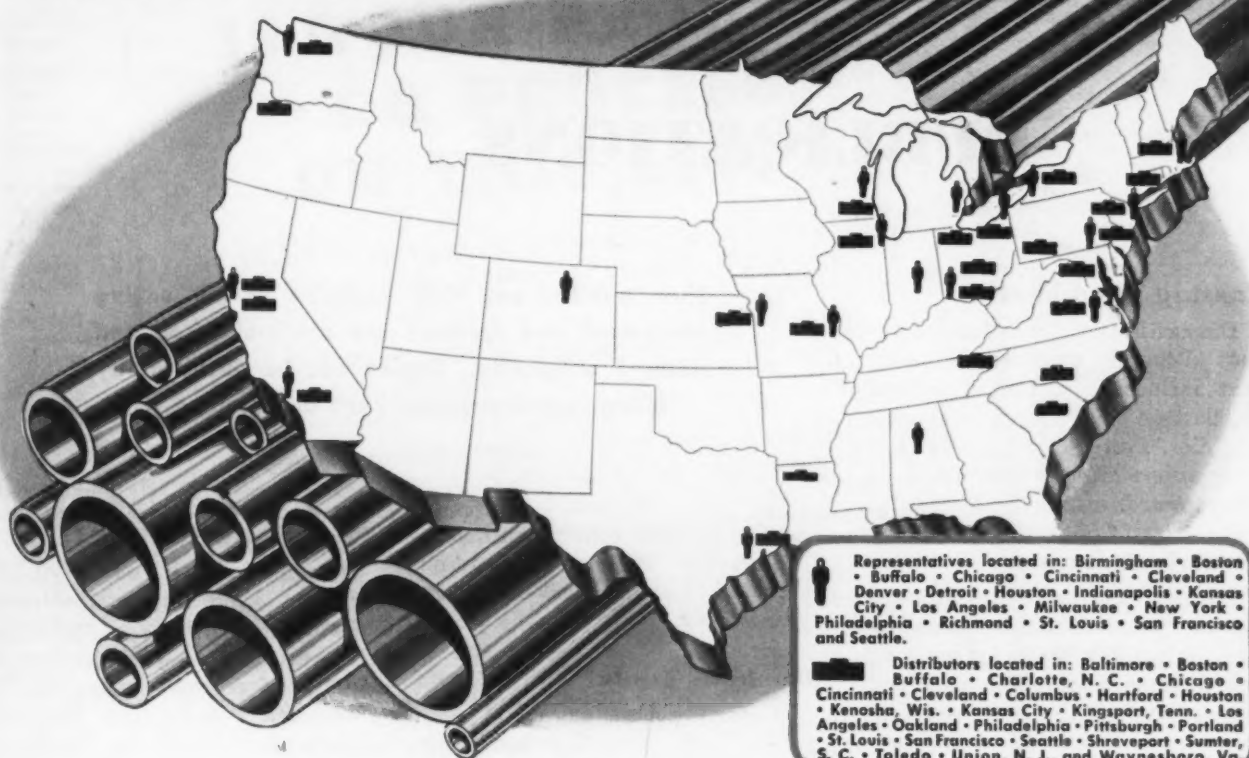
Detroit trade sources indicate that much of the dark pessimism prevailing there several months ago has been dispelled. Most machine tool people say a considerable amount of activity is going on although new placements are still on the lean side. At the moment, cutting tools appear to be one segment of the industry that are lagging far behind anticipated volume.

Chrysler activity has been stepped up appreciably within the past month according to Detroiters.

Ford has been very active, too.

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September 29, 1949

33

FREE

USE POST CARD

PUBLICATIONS

Casting Machines

Die casting machines for nonferrous alloys are described in folder that includes reprints of several articles on die-casting, materials and dies. *Lester-Phoenix, Inc.* For more information, check No. 1 on the postcard.

Electric Hammers

Bulletin describes self-contained electric hammers and self-rotating electric hammer drills for working and drilling in concrete, rock and brick. *Syntron Co.* For more information, check No. 2 on the postcard.

Materials Handling

Skids, tote boxes, pallets and racks are shown in 8-p. bulletin on compact labor-savers for industrial material handling equipment. Included are detail drawings of features. *Gabriel Steel Co.* For more information, check No. 3 on the postcard.

Welded Pipe

Specifications and data on spiral welded pipe are listed in bulletin No. 493. Pipe has great strength and is light in weight. *Taylor Forge & Pipe Works.* For more information, check No. 4 on the postcard.

Rotary Blowers

Bulletin No. 21-B-37 covers construction features and operating advantages of rotary positive blowers for pressure or suction service. Included are graphs showing operating characteristics under con-

New publications that describe money saving equipment and services are available free and without obligation. Copies can be obtained by filling in the attached card and mailing it.

stant or variable conditions. *Roots-Connersville Blower Corp.* For more information, check No. 5 on the postcard.

Machine Tools

Machine tools for metal and woodworking including band, jig and circular saws, drill presses, lathes, jointers, sanders and flexible shaft machines are described in catalog B. *Walker-Turner Div., Kearney & Trecker Corp.* For more information, check No. 6 on the postcard.

Flexible Shaft Machines

Multiple speed flexible shaft machines are described in 4-p. bulletin. Machines, mounted on 3-wheel dollies, have 16 constant shaft speeds and perform smoothly, without whip or cramping. *Pratt & Whitney Div., Niles-Bement-Pond Co.* For more information, check No. 7 on the postcard.

Rolling Equipment

Roll forming and special production machinery, flying shear and cutoff machines in addition to the finished products produced by these machines are featured in catalog. *American Roller Die Corp.* For more information, check No. 8 on the postcard.

Pneumatic Tools

Pneumatic sanders, buffers, grinders, sand rammers, chipping hammers, wire brushes and accessory equipment are described in catalog of portable tools. *Master Pneumatic Tool Co., Inc.* For more information, check No. 9 on the postcard.

Meehanite Castings

Tabular summary of the engineering properties of various types of Meehanite castings is given in bulletin No. 32. Data includes chart of property changes resulting from variations in section size. *Meehanite Metal Corp.* For more information, check No. 10 on the postcard.

Grinding Wheels

Described in 4-p. bulletin are segmented grinding wheels and chucks. Specifications and price list are included. *Sterling Grinding Wheel Div., Cleveland Quarries Co.* For more information, check No. 11 on the postcard.

Flexible Couplings

Flexible couplings for direct drives are described in bulletin No. 19. Design utilizes steel sprockets and roller chain for simple, rugged.

Turn to Page 105

Air Compressors
Aircraft Engines
Annealing Furnace Car
Bearings
Asbestos Gaskets
Arc Lamps
Automobile Door Locks
Automobile Window
Regulators
Abrasive
Wheels
Assembly
and Run-in

Belts, Drive
Bearings

Cartridge
Case
Coating
Cathode
Ray Tubes
Corrugator
Cutting Oils
Machines
Conveyors
Clocks
Condensers
Carbon Dies
Couplers
Clutch Plate
Separators
Chill Coating
Cracking Coil
Plugs
Copper Oxide
Discs
Clamping Paste
Camera Springs
Core Oven Parts
Crack Case Oils
Camera Shutters

Die Casting
Die Casting
Machines
Distributor Arms
Diesel Engines
Dampeners,
Vibration
Degreaser Chains
Dies
Drawing Dies
Drying Oven Parts

Extruding Dies
Electric Irons
Electric Toasters
Electrostatic Shields
Elevators
Enameling Oven
Parts

Forging Dies
Flexible Shafts
Flash Pans
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Joining Compounds

Kiln-car Wheel Bearings
Kilns
Knife Blade Switches

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Locomotive Rod Packings
Lead Presses
Line Shafting
Lamp Bases

Machine Tools
Motorcycles
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Phonographs
Pattern Coating
Press-fitted Parts
Pneumatic Tools

Quill Bearings

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Molding
Rubber Parts
Roller Gate Chain
Pins
Railroad

Equipment
Relay Switches
Resistances
Radio Tubes
Razors, Electric
Run-In
Reduction Gears
Rocker Arms

Spray Oil
Steam Engines
Searchlights
Sewing Machines
Screw Threads
Saw Blades
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Stamping Dies
Stone Crusher
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Trolley Wire
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Upper Cylinder
Lubricants
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YES? "dag" colloidal graphite dispersions are already helping someone in the same business. They can save you money, too.

NO? "dag" colloidal graphite has many useful properties in unique combination . . . it may be just what you need to solve a problem in your business.

"dag" colloidal graphite is: a slippery, dry lubricating solid; resistant to high or low temperature extremes; easily mixed with most liquids and solids; chemically inert; an electrical conductor or resistor, depending on where used; composed of microscopically fine particles; black and opaque; a good conductor of heat; low in photo-electric sensitivity; possessed of a low coefficient of expansion; gas adsorbent; diamagnetic; made up of electrically charged particles; possessed of a specific gravity of 2.00-2.25 and a Moh's hardness rating less than 1.

"dag" colloidal graphite dispersions are most commonly used for GENERAL LUBRICATION, EXTREME (HIGH OR LOW) TEMPERATURE LUBRICATION, PARTING, IMPREGNATION, AND OPAQUING; also for other applications listed on this page.

Mail the coupon NOW for more information on your specific problem. Acheson Colloids engineers are anxious to help you.

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NEW

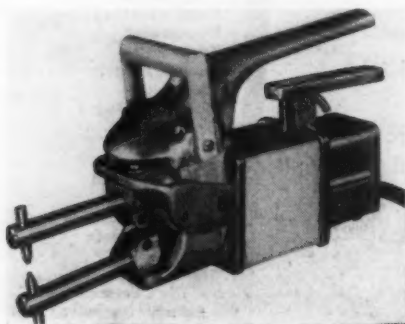
PRODUCTION IDEAS

Continued

rosive atmospheres and improve coupling performance. *Diamond Chain Co., Inc.* For more information, check No. 25 on the postcard on p. 35.

Portable Spot Welder

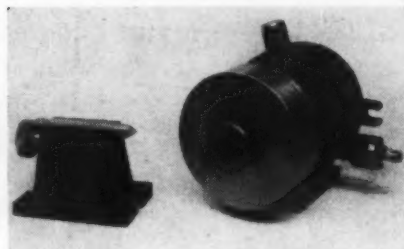
Stainless and mild steel up to $\frac{1}{8}$ in. combined thickness can be weld-



ed with a new portable spot welder. It weighs 23 $\frac{1}{4}$ lb, operates on 220 v ac, single phase, 50/60 cycle lines. Alternate tongs are available with tips set at 90° or 45° angle, and telescopic style allows maximum reach into hard-to-get-at places. *National Cylinder Gas Co.* For more information, check No. 26 on the postcard on p. 35.

Speed Indexer

An automatic, positive-locking, indexing fixture provides a positive and rigid control for precise machining operations within its range. The positive locking device, coupled with the quick releasing and index-

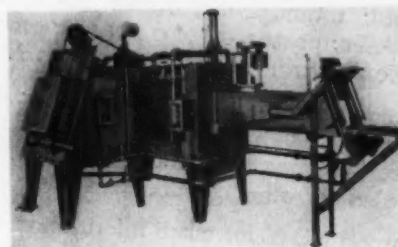


ing mechanism, holds the work firmly against movement in either direction. The speed indexer has a base for horizontal mounting and a mounting surface at right angles for vertical use. The indexing mechanism may be air or hydrauli-

cally operated, and may be connected with table controls on the machine to be fully automatic. The indexer is provided with a 1 $\frac{1}{2}$ in., 8 thread mounting to accommodate standard chucks and fixtures. A 24-position indexing plate allows an indexing range of 4, 6, 8, 12 and 24 positions. *Erickson Tool Div.* For more information, check No. 27 on the postcard on p. 35.

Heat Treating Furnace

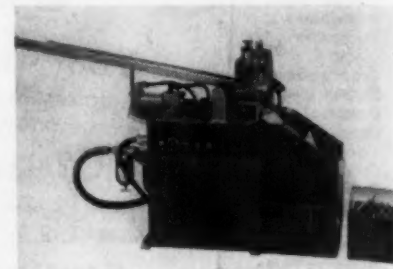
Bright hardening high speed tool steels without decarburization or carburization is possible in a new furnace that permits preheat, high heat, and quench in the one complete unit. The preheat is built at a right angle to the high heat. The quench unit, following directly behind the high heat unit, quenches by forced convection, cooled, protective atmosphere. Sections of



high speed steel up to 2 in. can be fully hardened by the atmosphere quench. The protective atmosphere can be kept under perfect control and is generated in a separate generator. Either the Lindberg Hyen atmosphere generated from city, natural, propane, or butane gases or the Hyco atmosphere generated from charcoal can be used. Keeping the steel bright during tempering is accomplished by retorts used in standard air tempering furnaces. The same protective atmosphere used for hardening is used in the retort for bright tempering. The L Furnace may also be used for hardening tools and dies, bright copper and silver brazing, and bright annealing. *Lindberg Engineering Co.* For more information, check No. 28 on the postcard on p. 35.

Sorting-Gaging Machine

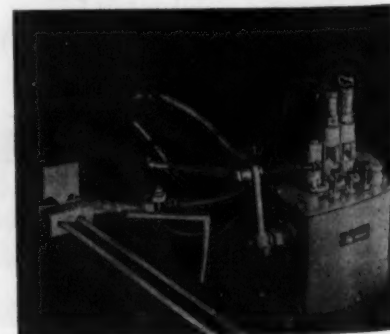
Custom-engineered electronic sorting and gaging equipment segregates a product into any number of categories of any dimensional width. The machines can be made to meet individual needs for volume of product. They can be manual loading and disposal; manual loading and automatic disposal; or automatic loading and automatic disposal. The machine illustrated gages and sorts straight sleeves, measuring for length and diameter at both ends. The sleeves are sorted into four categories: oversize



and undersize in length regardless of diameter; undersize in diameter at either or both ends; oversize in diameter at either or both ends; and sleeves within tolerance. Production rate is 3000 per hr. The capacity is adjustable for different lengths and diameters. *Brown & Sharpe Mfg. Co.* For more information, check No. 29 on the postcard on p. 35.

Spray Lubricator

Intermittent spraying of punch and shear operations is accomplished with a new automatic force-feed spray lubricator. Synchronized directly with the machines, the



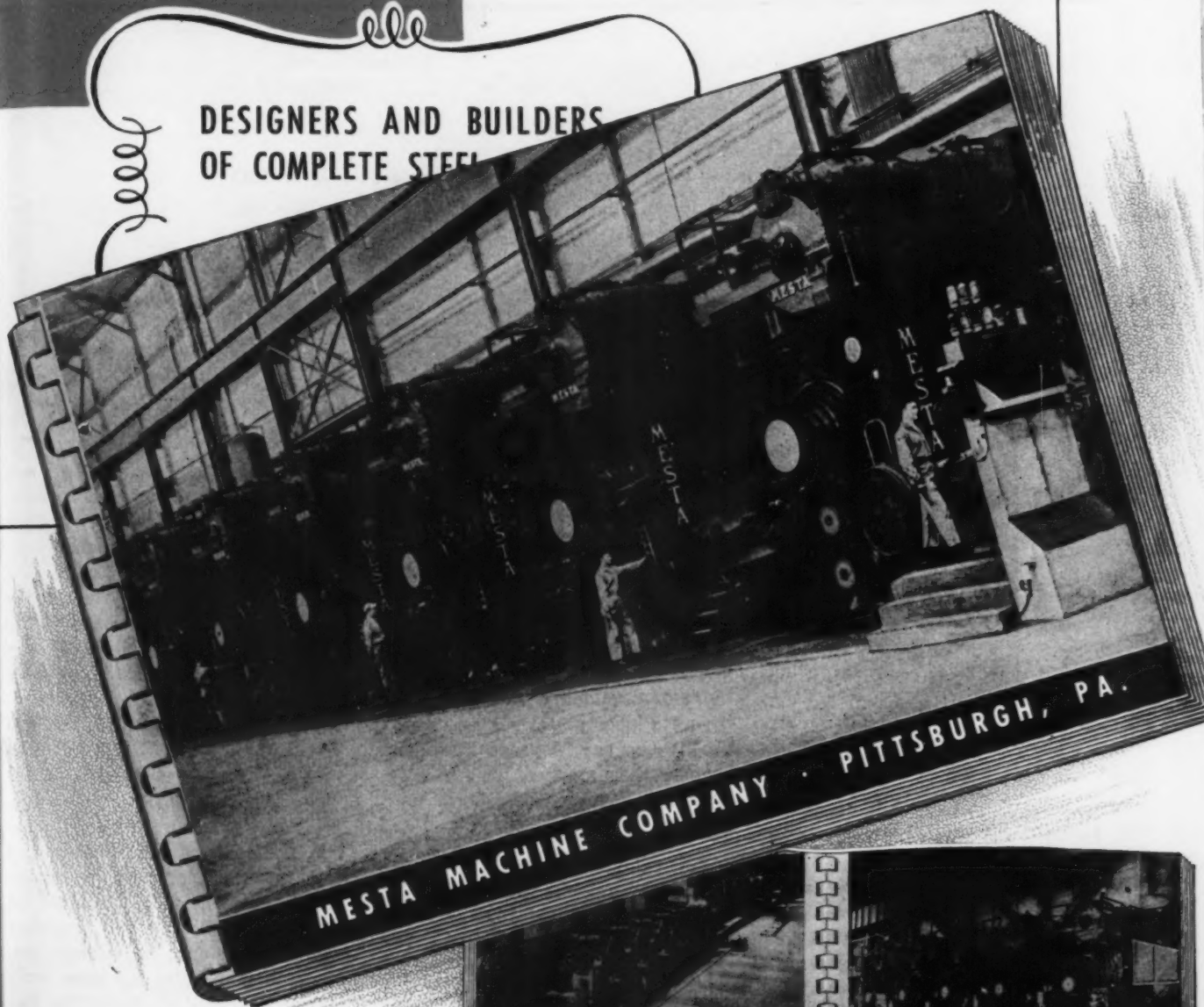
spray lubricators force automatically timed jets of oil mist directly onto the punches, shearing edges, dies or other parts. Compressed air and oil are fed simultaneously

Turn to Page 106

MESTA

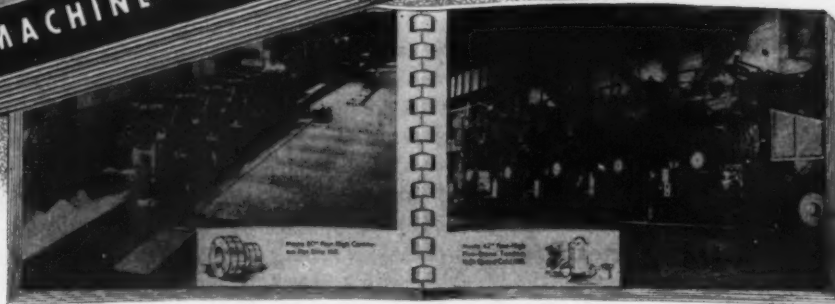
PLANT and PRODUCT

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OF COMPLETE STEEL PLANTS



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Views in the Mesta plant, together with installation photographs of Mesta rolling mills, auxiliary equipment, and heavy duty machine tools are illustrated in the new MESTA PLANT and PRODUCT BOOK. For your copy, write Mesta Machine Company, Department A, Post Office Box 1466, Pittsburgh 30, Pa.



DESIGNERS AND BUILDERS OF COMPLETE STEEL PLANTS

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On the ASSEMBLY LINE

AUTOMOTIVE NEWS AND OPINIONS

Pension plan for Ford workers seems assured . . . UAW-CIO will hail a pension plan as a tremendous victory for the union . . . Effects of British devaluation discounted.



by

Walter G. Patten

Detroit—As this is written it appears certain that Ford and the UAW-CIO will reach an agreement on pensions. This agreement will be hailed as (a) the first large pension plan for hourly workers adopted by U. S. industry, (b) a "triumph" for governmental intervention in labor disputes, (c) a sweeping victory for the UAW-CIO.

Acceptance of a pension plan for Ford workers will undoubtedly involve a very large number of hourly employees under a single pension agreement. Such a Ford agreement will cover approximately 110,000 workers. Since the agreement involves the militant, and sometimes unruly UAW-CIO, it is going to be about the most seriously tested pension plan in the history of industrial America.

It can hardly be denied that government officials may claim some kind of thanks for removing the biggest barrier to a 1949 wage settlement. This is not the first case of governmental intervention, however. An examination of past U. S. labor history will show that somebody *always* has to step forward and break the log jam that has a habit of developing in this country before a labor pattern is set. Twice during the past 4 years President Truman has stepped in, for good or evil, to break the deadlock.

President's Proposal Accepted

For example, back in 1946 the President came up with an 18½¢ wage boost proposal that was accepted by the steel industry in return for permission to raise steel prices.

In 1947 the annual labor stalemate in this country was broken by an agreement GM signed with the UE while the UAW-CIO was still on strike. The UAW-CIO was so incensed, it will be recalled, by what it regarded as a "stab in the back" by both GM and UE, the union refused to accept an 18¢ offer by GM for another 5 weeks. The "new look" in this GM wage agreement was paid holidays, a union demand that was later to sweep the entire auto industry.

In 1948 GM concluded its famous Cost of Living escalator agreement.

This was probably a wage offer that came closer than any other to being accepted in its original form. However, it is often surprising how closely auto strike agreements are to the original company offer. Most of the delays in auto strike negotiations have been occasioned by the necessity of paving the way for a fair offer. This year is an excellent example.

Prior to the report by the steel fact-finding board, Ford had vehemently insisted it must hold the wage line to remain competitive. When the government report established March as the starting date for a pension plan, Ford's competitive argument was reduced to pretty thin air. The company wanted pensions; it needed pensions to help solve its huge problem of over-age workers. The fact finders report offered an opportunity to make a wage offer that Ford was apparently reluctant to make as long as the UAW-CIO was talking about a 45¢ package. Came the fact finder's report and—presto—the Ford negotiators got more work done in 10 days than was accomplished in the previous 100 days.

Ford Contract a Victory

The UAW-CIO can undoubtedly hail a new Ford contract as a tremendous victory. It will probably get pensions — not only for Ford

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WORLD'S LARGEST BUILDERS OF AIRLESS BLAST EQUIPMENT

September 29, 1949

workers but for workers all over the country. It got a "human peg" on which to hang its wage demands which may turn out to be much more effective than just a demand for another wage boost. It got itself into the banking business and the business of taking care of aged people on a big scale.

But the union also took on some new responsibilities. If it fails to discharge these responsibilities in an acceptable manner it can easily tar itself with a guilty stick that John Lewis has got hold of. The union may also find that even before the Ford pensions are rolling, John Lewis will have milked a lot of the public appeal out of industrial pensions. Also, the union may be breeding for itself a lot of internal dissension in which the younger members of the union may raise loud objections to carrying the old union members on their backs. The union has undoubtedly won a big victory—with the help of the President. It has also saddled itself with its biggest and most critical public responsibility.

It remains to be seen if an 8¢ pension gain is equivalent to a 10¢ across-the-board wage boost as some industry observers seem to predict. And wouldn't it louse things up fine if the Ford workers would, as they did once before, turn around and vote against the union's 1949 pension plan?

Effects of Devaluation Discounted by Auto Industry

Devaluation of the British pound won't help the auto industry—neither is it likely to hurt as much as was predicted when the agreement was first announced.

There is no denying that export business is normally a profitable segment of the auto industry's volume. In some years past the 8 pct or more that went to export probably represented the difference between big profits and just satisfactory profits. This was particularly true in the years when the industry was operating substantially below its capacity. The industry will miss its export "cushion." Currently, however, it has its hands



EYE-CATCHING CHRYSLER: Chrysler Div. of Chrysler Corp. has recently introduced its first postwar model station wagon which is being produced at Detroit and Los Angeles. The new models have all steel bodies and white ash trim fitted on doors and rear quarter panels. With seats removed and the tailgate lowered, loading space 10 ft long is available.

pretty full with domestic orders.

Another reason for minimizing the effect of the latest British move is that devaluation has been anticipated for sometime by the auto industry. Ernest R. Breech, executive vice-president of Ford, called attention to the fact that the British move was necessary and long overdue. "I hope the countries devaluating will now see fit to remove the walls of exchange restrictions that have been built up as international barriers," Mr. Breech said. Admittedly, Mr. Breech's final comment was more of a hope than an expectation.

Auto Exports Lag

The auto industry has taken recent steps to de-emphasize its foreign trade and this was necessary because the dollar shortage abroad has already taken an increasingly heavy toll. De-emphasis on export is shown by the latest reports of the Auto Manufacturers Assn. According to AMA, the total number of vehicles exported during August reached an all-time low of only 3.4 pct. During the past 8 months 208,215 vehicles were shipped abroad or about 5 pct of the industry total. Exports were already lagging 30 pct behind 1948 even before the recent British devaluation move, AMA said.

Some auto firms will undoubtedly be hit harder than others. Willys-Overland has, in recent years, been shipping more than 20 pct of its vehicles abroad. The Willys Jeep has been particularly well received in foreign markets. As a result of the recent British agreement, foreign buyers will now have either

to raise their dollar pools by 30 pct (if they want to buy the same number of vehicles) or else reduce the number of units purchased from American producers.

Generally speaking, there is no competitor anywhere in the world for an American truck. The competition in this market is from dollars only—not from foreign vehicles. Last year the number of trucks sold abroad was almost equal to the number of passenger cars exported.

Auto executives are, almost without exception, ready to dismiss the threat of an invasion of British passenger cars into the American market. Even when cars were scarce here, it is pointed out, the British cars didn't get very far. When American cars became more plentiful, the British sales curve took a nose dive. As one executive pointed out here this week, "The declining price of big U. S. used cars will easily take care of the shot-in-the-arm the small British cars will get from devaluation."

Buick Sets Production Record

The Buick plant at Flint is humming these days. Last week Buick completed its millionth car during the postwar period. The 300,000th 1949 model also came off the assembly line. Last month, Buick set an all-time record of 40,000 cars. It has only to pass the 316,000 mark to set an all-time record. Nearly 220,000 torque converter transmissions have been built during 1949. About 70 pct of all Buick cars are being equipped with these transmissions.

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UNITED STATES STEEL

WEST COAST PROGRESS REPORT



Los Angeles warehouse customers bewildered by price break . . . Authority reports on Pacific Northwest iron ores.

Los Angeles—Customers of steel warehouses in this area are finding it difficult, but not unpleasant, to realize they are "enjoying" what amounts to a price war among their suppliers even though the threat of a steel strike hangs over the industry.

While there has been a softening in demand from warehouses for bars, plates, sheet, structurals and a few other commodities, it is difficult to account for the price break which began appearing the latter part of August and reached its low point last week. On the contrary, there were those in the industry who felt that recent increases in freight rates would see an upward turn of warehouse prices.

Hot-Rolled Prices Revised

Perhaps the best explanation is that several small warehouses in this highly competitive area where there are now 85 or 90 such jobbers, were overstocked and sought to adjust inventories downward. Even this deduction is difficult to sustain when it is considered that most steel buyers were loath to let inventories get too low in the face of a threatened general steel shutdown.

The facts are that one jobber

Digest of Far West Industrial Activity



by

J. M. Reinhardt

issued revised prices on hot-rolled products in the latter part of August and these prices were soon followed by four other minor jobbers with the majors beginning to reduce accordingly early in September.

Last week practically all majors had met these lowered prices on hot-rolled carbon sheets, plates and structurals.

Some jobbers went even further by reducing prices on hot-rolled carbon bars, cold-finished carbon bars, cold-rolled sheets and alloy steels.

Hot-rolled sheets dropped from \$6.45 to \$5.45; cold-rolled sheets fell from \$7.90 to \$7.00; plates went from \$6.15 to \$5.50; and

shapes dropped 50¢ from \$5.95 to \$5.45. These prices are the standard base quantities as reported in THE IRON AGE.

Price Break Localized

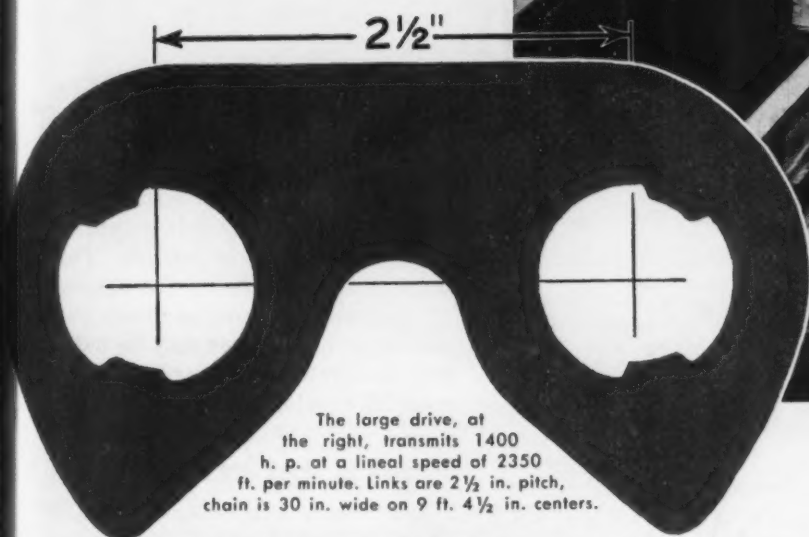
Up to late last week the price break had not spread beyond the confines of this trade territory and competent observers seriously doubted that markets in San Francisco and the Pacific Northwest would be affected except in some minor items. In San Francisco alloy steel bars took a drop of \$1.10 per 100 lb for A4615 hot-rolled with comparative reductions in other alloy bars. Usually reliable observers in this territory believe that this present price battle is the forerunner of a competitive session which will possibly eliminate some of the war-born small jobbers who have been operating in a sellers' market under a low overhead. It is the consensus that a normal market will hardly justify the 85 to 90 steel jobbers now in business here.

In San Francisco there is but little indication of an early settlement of the long drawn out warehouse strike which has closed all but 8 of the steel jobbing houses in that area. Business continues in good volume with those remaining open although buying remains on a hand-to-mouth basis and is considerably below peak volumes.

Pacific Northwest Iron Ores Evaluated in Report

Portland, Ore.—Those enthusiasts for industrial development in the Pacific Northwest who have long been clamoring for an integrated steel industry based on the existence of iron ore deposits in this territory will get but little

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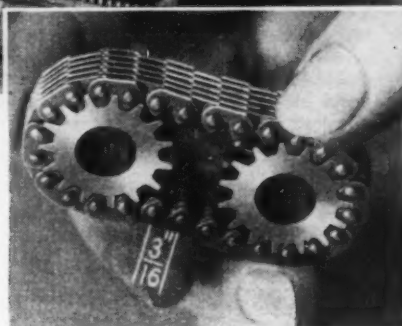
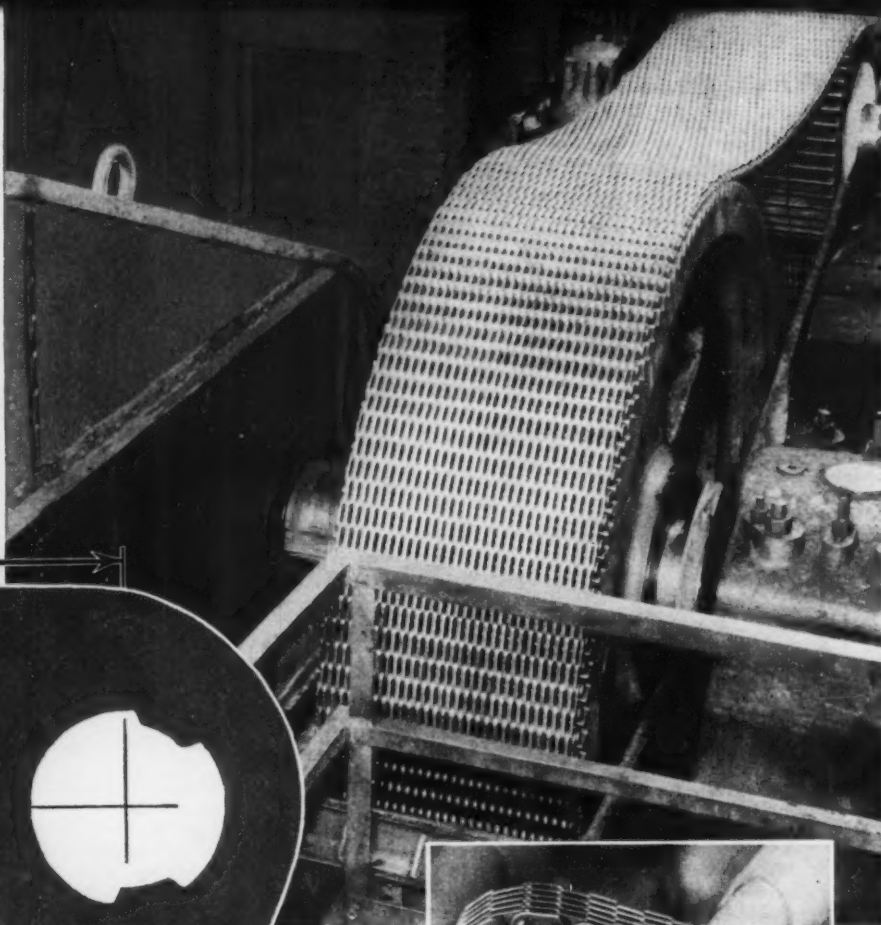
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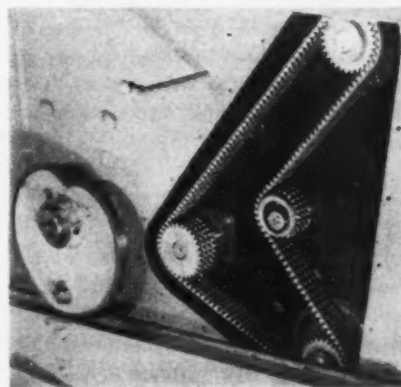


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September 29, 1949



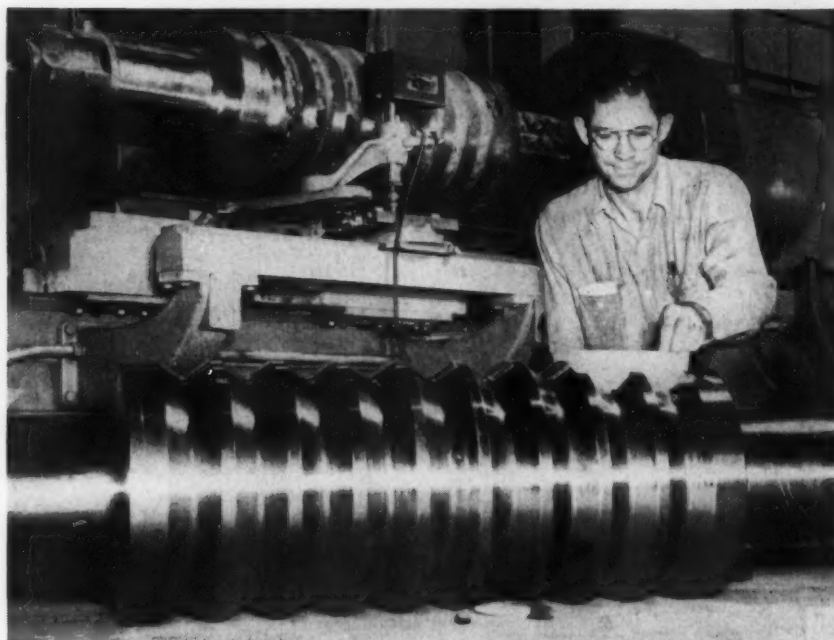
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LATEST IN CONTOURS: The new continuous rod and billet mill which Colorado Fuel & Iron recently opened at Pueblo, includes the latest in roll turning equipment. This Monarch lathe at the CF&I plant is a templet controlled roll turning lathe which permits faster and cheaper methods of turning the rolls for the new mill. Standard carbide tools are used which preclude the use of all the form tools which otherwise would be required. Also, the Keller control, top center, produces so perfect a contour that there is no need of matching rolls and keeping them paired in service.

encouragement from the report "Iron Bearing Deposits in Washington, Oregon & Idaho" by Carl Zapffe, prepared for the Raw Materials Survey of this city.

Reviews Different Ores

Mr. Zapffe, who is manager of the iron ore properties of the Northern Pacific Ry. Co., has been making a study of western iron ores since 1911 and this report culminates this work and is based on the writer's own research in the field and in the literature available on the subject.

While Mr. Zapffe clearly indicates that a blast furnace operation to reduce the Northwestern ores is impractical because of the wide variations in chemical analysis of these ores and their wide distribution, he does contend that the existence of these ores warrants consideration of the establishment of small electric furnace operations for their reduction.

Nine different types of ore are described in this review as they occur in 18 locations. Not all of the deposits known to exist in the states of Washington, Oregon and

Idaho are reported upon, but it is the author's contention that any of those omitted would contribute nothing to change the economics of the situation. None of the deposits reported upon have very much resemblance to the standard iron ores that are demanded in volume in standard iron production. All of the Northwest ores are classified as specialty ores and it is impossible to total up the reserves of all deposits as being representative of the potential iron production of the area.

Large Reserve Available

In discussing the high alumina iron ores, or ferruginous bauxite, found in Washington County, Ore., Mr. Zapffe is modestly encouraging about the potential use of this material in the iron industry. He indicates that because these ores approximate 21 pct of dry Fe, this material constitutes a potential reserve of several million tons of metallic iron.

These are the materials with which the Aluminum Co. of America has been experimenting for a number of years in an attempt to

recover the alumina and possibly the iron as the by-products.

In summarizing his conclusions this authority stated:

"Enough has been related to lead one unerringly to advocate adopting as a Northwest pattern only small scale furnace operations suitable to small ore deposits. That seems to point to using electric furnaces to reduce ores to metals. The quality of these ores point directly to making specialty irons.

"The lack of cheap energy was long a retarding factor in establishing certain new industries in the Pacific Northwest. Today cheap energy has been made available by the hydroelectric plants of the Columbia River system. The present inadequacy of the supply of electric energy rather than the character of the ores may be halting research and retarding commercial developments."

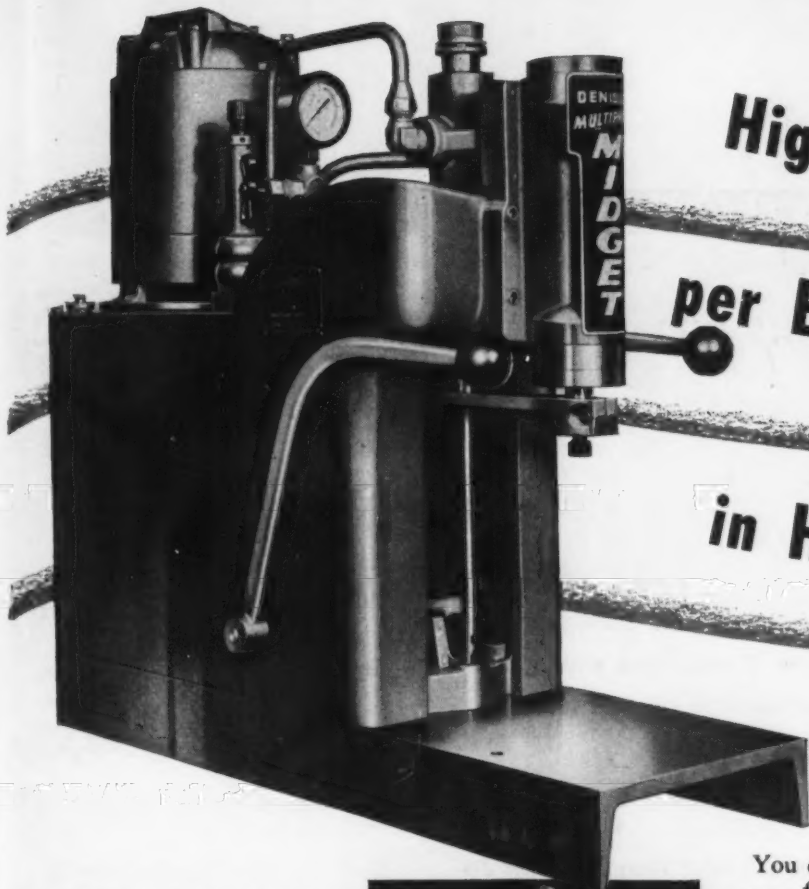
Geneva to Start Ore Mining

Salt Lake City—Geneva Steel Co. is in process of opening up its iron ore deposits at Desert Mound, Utah, to permit more selective mining. Columbia Iron Mining Co., the ore mining subsidiary, has awarded a contract to the Utah Construction Co. for stripping 3 million yards of overburden from the deposits and mining operations are scheduled to start in November.

The over-all mining operation will remain substantially the same with the production at the Iron Mountain mine being reduced by the amount of production at the newly opened properties.

Orders Aluminum Trailer Vans

Spokane—Brown Trailers, Inc. has announced an order for 84 aluminum trailer vans to cost more than \$500,000 from the Pacific Intermountain Express. PIE has purchased more than \$2 million worth of Brown trailers since 1946 according to A. A. Kearney, vice-president of this large aluminum consumer.



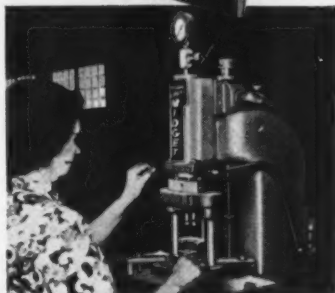
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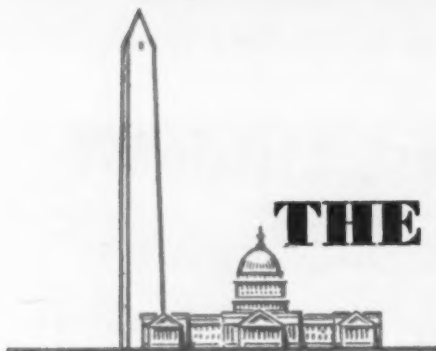
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THE FEDERAL VIEW

THIS WEEK IN WASHINGTON

Washington divided as to the effects of foreign currency devaluation . . . Maritime Commission ending investigation of 2 million tons of missing ship plate.



by

Eugene J. Hardy

Washington—Washington officialdom is considerably divided as to both the short and long run effects of foreign currency devaluation, particularly the pound sterling. Many see it, however, largely as belated recognition of something which had already taken place. In other words, devaluation has been made official.

One thing is apparent. When it came, devaluation was not what Treasury Secretary Snyder had been plugging for. Obviously he had in mind the building up of confidence in foreign currency so that exporting countries would be willing to accumulate reasonable reserves and thus pave the way for freer world trade.

Instead, it would appear that devaluation has been designed largely for the purpose of grabbing off competitive advantages in world markets. If a raiding policy should be pursued, the whole thing could easily result in even tighter restrictions.

Soft Goods Industries Hit

It is believed by some here that the heaviest effects will be felt by the soft goods industries. Some of these have been having tough going for some time. It is expected that such imports to this country will be increased because of lower prices. It would be no surprise if these in-

dustries flooded Congress with demands for increased tariffs.

The State Dept. has made it clear that the Administration would strongly oppose any such moves. It is said that this has been put into form of a promise to Europeans.

Others think there will be but little cutback in United States exports, even against potentially cheaper goods. One reason for this thinking is that Marshall Plan shipments presently account for half of our billion-a-month export trade. We are morally committed to this program for another 3 years.

Effects on Metal Products

Regarding metal products, Commerce Dept. officials say the effects of the currency devaluation should be as follows:

Iron and steel products—No appreciable increase in imports into the U. S. Slight slash in exports.

Machinery and machine tools—Ditto on steel regarding imports, but a substantial lessening in U. S. exports.

Consumer durable goods (metal)—Little or no effect on either exports or imports.

Despite the devaluation of currencies, these experts say that prices of European metal goods are still too high to compete with America's high-volume, low-cost productive efficiency.

However, one important nonferrous metal, aluminum, may cause trouble, say these sources. Devaluation will enable Canada to cut production costs on aluminum ingot about 10 pct, according to available information, which could give America's wartime entries into the aluminum business a lot of headaches.

Nevertheless, panaceas are being offered. One of the unofficial proposals is a straight price support plan. This would be similar to the farm support program wherein the government enters the market when prices drop to certain levels. Another suggestion has been to set up a series of international agreements along the lines of the wheat agreement.

Either proposal, if put into practice, could only have one result—a long step toward a controlled economy and putting the government still deeper into the field of private enterprise.

Investigation of Missing Ship Plate Expected to Close

The Maritime Commission's lengthy investigation of some 2,000,000 tons of missing ship plate, not accounted for during the hectic war years, is expected to draw to a close within the next few weeks with the issuance of a comprehen-

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sive report on steel and the wartime shipbuilding program.

It will be remembered that about 2 years ago, (THE IRON AGE, Sept. 7, 1947, p. 111) Maritime Commission officials began a thorough study of steel plate used for merchant ship construction during the period 1941-45. It was claimed that the government had been billed for and had made payment for some 2,000,000 tons more plate than had actually been ordered or received. It was believed at that time that this discrepancy was due to alleged overcharges and underweight shipments.

Will Issue a Report

The forthcoming report will not recede from this position. The steel industry's billing practices will be criticized. New standards will be recommended to prevent the recurrence of the claimed abuses. In addition, THE IRON AGE has learned that there may be recommendations for legal action to obtain refunds in some cases. The shipyards will also be revealed as having been at fault, regarding such things as scheduling practices.

This investigation, which started out as a hunt for the missing steel, was broadened considerably by the

commission and has wound up as an economic survey of the entire shipbuilding industry.

One of the more important recommendations is expected to call for the Maritime Commission to undertake its own ship construction in the future. Maritime firmly believes that ship-building capacity during the war was not properly allocated and that the commission should have dealt directly with the steel companies for its own programs rather than through the War Production Board. WPB and its advisory committees were a definite hindrance, according to commission officials.

Clarification of Freight Absorption Rests With Congress

Further indication that any clarification of industry's right to absorb freight and sell on a delivered price basis must come from the Congress rather than the courts is contained in the recent decision of the Fourth Circuit Court of Appeals involving the crown (bottle cap) manufacturing industry. In this case, the court again struck out at freight absorption and upheld the Federal Trade Commission's

doctrine of the implied conspiracy.

Interesting point about this ruling is that the opinion was written by Judge John J. Parker, not a New Deal appointee, but the same Judge Parker who was appointed to the Supreme Court by President Hoover and failed to gain Senate confirmation. However, it should be pointed out that Judge Parker has long been regarded as one of the judiciary's leading exponents of the theory that the administrative agencies of the government are a body of experts and can do no wrong.

In the case at hand, the Court found that bottle caps are sold f.o.b. the plant of the manufacturer with an agreement that the purchaser shall be credited with the difference between freight actually paid and that which would have been paid if purchase had been made from the nearest manufacturer. The Court then bluntly stated that "this practice has all the vice of the basing point system in that the purchaser pays the same delivered price, whatever manufacturer he purchases from, and the manufacturer must absorb the freight differential, so that the net selling price which he receives is different for different customers, depending upon their location.

THE BULL OF THE WOODS

By J. R. Williams



Practices Are the Same

"Whether viewed as an unfair trade practice in itself, or as evidence of the existence of a conspiracy, we see no practical distinction between the freight equalization practice and the multiple basing point system before the Supreme Court in the Cement case."

Dashing aside arguments that this case was different from the Cement Institute case because no "phantom freight" was involved, the Court emphasized that "there is involved freight absorption, resulting in equal delivered prices by all manufacturers selling in a given locality and unequal net returns to the manufacturers from sales to customers in different localities. There can be no difference between phantom freight and freight absorption. Another argument is that the case here is distinguishable because there is no prohibition of the purchaser's taking delivery at the point of manufacture and thus eliminating freight altogether.

STRAIN GAGE DYNAMOMETER

For Measuring Cutting Tool Loads

By **H. ROTTERSMAN,**



A. J. BETTINGER



and **W. P. BLAKE,**



Sam Tour & Co., Inc., New York

AN accurate, inexpensive and instantaneous method of measuring cutting tool loads was required during the investigations of hot machining of some of the ferrous alloys that are normally difficult to machine. This research project was undertaken under the sponsorship of the U. S. Navy Dept., Bureau of Ships. This need resulted in the theory and development of a strain gage tool dynamometer designed specifically for measuring the cutting tool loads of single point tools used in turning operations.

The cutting load on a single point lathe tool can be resolved into three classifications: (1) The longitudinal or transverse load, which parallels the lathe bed and tends to deflect the tool toward the tailstock during normal turning operations; (2) the tangential or torque load, which deflects the tool downward toward the lathe bed, and (3) the radial or thrust load, which tends to push the tool away from the work. The magnitudes of these component loads can be affected by materials cut, tool design, sharpness

SUMMARY: During the research into hot machining potentialities, the need arose for a cutting tool load measuring device. Development of the strain gage dynamometer resulted in an instrument simple to operate, accurate, able to measure instantaneous loads, inexpensive to construct, and caused no interference with the machining operations. The construction, calibration and use of this dynamometer are described in this article.

of tool, cutting speed, depth and feed of cut, and other such factors.

There are three methods of tool load determination: Hydraulic, electrical and mechanical. In any system, the prerequisite for a tool dynamometer for the laboratory tests under consideration was that it had to be simple to operate, reasonably accurate, able to measure instantaneous loads, designed so as not to interfere with the machining operation, and inexpensive to prepare.

Consideration was given to previously de-

veloped methods. The electrical device exhibited by the U. S. Steel Corp., in the Machinability Exhibit at Cleveland in 1940¹ measured both instantaneous and average tool pressures, but this unit was limited to measuring only tangential loads. Because of insufficient data concerning the unit and its limitation of measuring only one of the three component loads, this dynamometer was not further considered.

O. W. Boston, of the University of Michigan, designed a tool dynamometer that measured loads by means of deflections of structural members.² These deflections were amplified by levers to a dial gage for recording. Although the Boston dynamometer measured the three load components, it was believed that for the purposes needed, construction costs were too high.

In addition to these two types of load measuring devices, metal cutting literature contains references to other types of tool dynamometers. The time and expense of constructing such units, however, made it tempting to investigate other possibilities.

A cutting tool, as mounted in a standard lathe tool post, is a cantilever beam and therefore, is subject to deflections under the application of external loads. It was decided to mount Baldwin-Southwark SR-4 electric strain gages on the tool shank to measure the strains in the tool. The availability of the necessary equipment within the laboratory and the expected flexibility of the resultant dynamometer were pri-

mary factors behind the design of this instrument.

The theory of strain gages is fairly familiar. The gage is mounted on the member to be examined, in this case the lathe tool. The gage is one leg of a balanced Wheatstone bridge. When the tool is deflected, the strain gage is similarly distorted, and this distortion within the strain gage alters the electrical resistance of the gage, upsetting the balance of the Wheatstone bridge. Rebalancing the bridge by a slide wire indicator, a variable resistor graduated in microinches of deflection, permits the direct measurement of strain. The slide wire indicator and the Wheatstone bridge are incorporated in the strain indicator. Measuring tool loads with

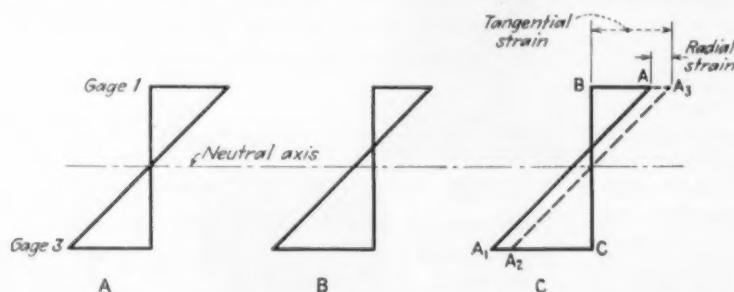


FIG. 1—The principle of cutting tool loads is shown schematically in these three sketches. A represents a straight tangential load and B a combination of tangential and longitudinal loads. In C, the condition shown in B is represented by line AA_1 . By mechanically shifting AA_1 until it passes through the normal neutral axis of the tool (A_1A_2), true tangential and longitudinal strains can be determined. A_1B is a measure of tangential strain, and AA_2 is a measure of longitudinal strain when converted to a suitable scale.

the strain gage dynamometer follows this basic principle.

In a turning operation, if only tangential loads were to be applied to the cutting edge of the tool, the tool would deflect downward. Equal tensile and compressive strains would then be set up in the top and bottom surfaces of the tool shank. Strain gages mounted on these surfaces would be correspondingly distorted, and these distortions would be measurable with the strain indicator. Under these conditions, in one plane within the tool shank there would be no strain. This would be at the neutral axis of the tool shank as shown in fig. 1A. The plane of the neutral axis can be determined by basic mechanics.

When, in addition to tangential loads, radial loads are superimposed upon the tool, the resultant tensile strain on the top surface of the tool is reduced. At the same time, the compressive strain on the bottom surface is increased by the same amount. Fig. 1B illustrates this condition of superimposed tangential and radial strains. It will be observed that the plane of zero strain has shifted some finite distance above the neutral axis. This represents the actual strain conditions on the top and bottom surfaces of the tool shank under these combined load conditions, which are measurable by strain gages mounted on these surfaces.

This condition is represented by the line AA_1 in fig. 1C. By mechanically shifting the line

AA₁ until it passes through the normal neutral axis of the tool, position A₂A₃ in fig. 1C, the true radial and tangential strains can be determined. The line A₃B, when converted to some suitable scale, is the measure of the tangential strain, and the line AA₃, to the same scale, is the measure of the radial strain.

Similarly, a longitudinal load would set up tensile and compressive strains in the side surfaces of the tool. With strain gages mounted on these surfaces the longitudinal strain can be measured and a check made upon the radial strain.

To analytically determine tangential strains, the strains on the top and bottom surfaces are averaged. The difference between the average strain and the measured strain on either the top or bottom surface would be a measure of the radial effect. The longitudinal strain can be determined in the same way.

The selection of strain gages to be mounted on a tool shank is limited by the physical dimensions of the shank. The first shank used was 11/16 in. wide x 1 in. deep. The original gages selected were 3/4 in. long x 5/16 in. wide. Because of the size of the strain gages selected, there was about a 3 3/4 in. overhang of the cutting edge from the tool post assembly. This was excessive as compared to normal lathe procedure, but was corrected on later dynamometers by relocation of the gages and by using smaller gages. Fig. 2 shows the layout of the first strain gage mounting and wiring.

The purpose of the five strain gages shown in fig. 2 was to obtain sufficient information to compute the three tool load components. Gages 1 and 3, mounted on the top and bottom surfaces of the tool shank, were used to measure the tangential strains. Gages 2 and 4, mounted

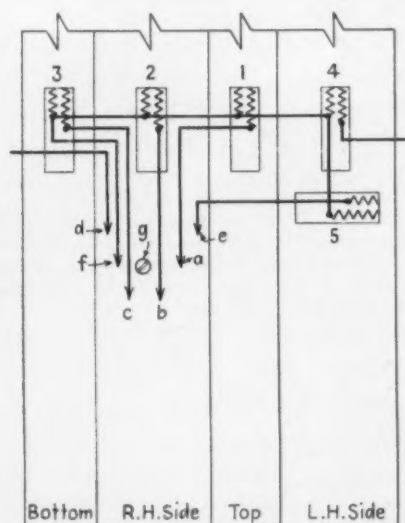


FIG. 2—The original strain gage arrangement had the temperature compensating gage, item 5 in the sketch, mounted on the tool shank. The gages are numbered 1 to 5. Items a, b, c, d, and e are the active lead wires of the individual gages; item f is the common leg of all gages; and item g is the screw to secure the lead wires to the tool shank.

on the side surfaces of the tool shank, were used to measure the longitudinal strain and check the radial strain. Gage 5, similar to the other four gages, was used for temperature compensation. This gage has to remain unstrained at all times. For the original dynamometer setup, the temperature compensating gage was mounted on the left face of the tool and at right angles to the other gages.

It was believed that in this position the temperature compensating gage would remain unstressed. However, during the calibration of this dynamometer it was observed that it was being stressed. Because of the introduction of this additional variable, the readings of the other gage elements could not be easily or quickly calibrated. This necessitated using the beam method of calibrating the strain gages with this dynamometer.³

The beam method registers the strain in a pair of gages on parallel planes. The top and bottom gages, 1 and 3, would measure double the tangential load, and the side gages, 2 and 4, would measure double the longitudinal load. The temperature compensating gage, 5, could not be used. The beam method of strain measurement would provide for automatic temperature compensation because all gages used for the strain measurements are on the tool shank and are at the same temperature.

Because of the absence of an unstrained gage in the beam method for measuring strains, it becomes impossible to measure radial loads. The radial load on a pair of strain gages in this method of calibration reduces the strain on one surface and increases the strain on the opposite surface by an approximately equal amount. It does not materially affect the total strain reading, which is the quantity measured.

To calibrate the strain gages, it was necessary to measure the strains caused by known applied loads. Therefore, with the tool shank mounted in the tool post, as it would be for actual cutting, the tool post and tool assembly were removed from the lathe and clamped on the bed of a 10,000 lb Tinius Olsen tensile testing machine. For calibrating the tangential loads, the tool assembly was clamped to the testing machine bed in the normal position. A metal rod was fixed to the moving platen of the machine and the simulated cutting load was applied by the rod with point application. A steel insert was used in the tool during calibration to avoid damage to the carbide insert. For longitudinal load calibration, the tool post assembly was re-clamped to the bed so that the axis of the tool post was in a horizontal position.

A second tool gage dynamometer was later designed in which the stressing of the temperature compensation gage was eliminated. The tool overhang was also reduced to a minimum in this design. Fig. 3 is a diagram of the revised mounting. The temperature compensating

gage was mounted on a separate piece of thin steel rigid enough to avoid flexing, and then placed inside a protective cover that shielded all gages against the possible abrasive actions of the chip. To avoid straining, the compensating gage and its mount were made free-floating inside the protective cover.

The modified tool dynamometer had the same gage arrangement as the original dynamometer. The tool overhang was reduced to 2 in. by using SR4 strain gages that were $\frac{1}{4}$ in. long x $\frac{3}{32}$ in. wide. While calibrating the modified dynamometer on the tensile machine as described, it was noticed that, because of the supporting action of the tool post, the true cantilever effect was not being obtained. The larger support given by the tool post base, as against the single point support furnished by the locking screw, shifted the neutral axis so that stresses on opposite sides of the tool shank were not equal. Further calibration runs, with a box type holder for the tool shank substituted for the tool post holding method, indicated that this variation could be reduced to a negligible point.

The calibration curves obtained for the early dynamometer are shown in fig. 4. In applying a tangential load in the calibration of tangential gages, 1 and 3, there was no resultant distortion of the longitudinal gages, 2 and 4. However, when the longitudinal loads were applied for calibrating of the longitudinal gages, there was distortion of the tangential gages. A correction, therefore, was made for the effect of the longitudinal loads upon the tangential strain readings. The physical dimensions of the tool shank permitted a greater deflection of

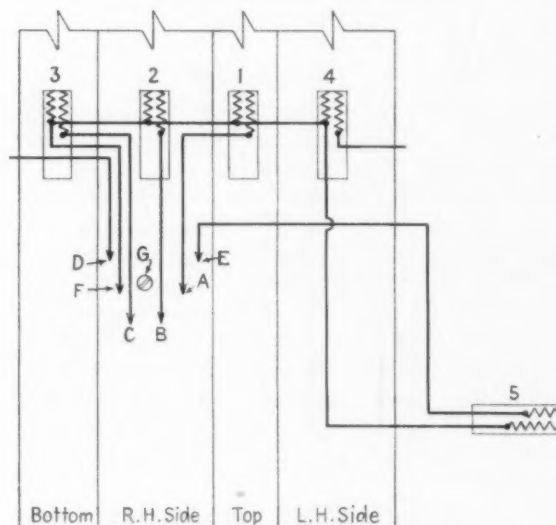


FIG. 3—The revised strain gage arrangement had a free floating temperature compensating gage, item 5. Load gages are numbered 1 to 4. Items A through E are active lead wires of the gages; F is the common leg; and G the anchoring screw for the lead wires.

the shank under longitudinal loading than under an equal tangential load. This greater deflection on longitudinal loads accounted for the distortion within the tangential gages.

During calibration it was thought that, because the point of application of the three component loads was offset from the neutral axes of the tool shank, the probable torsional effects produced by these loads on the strain gages would invalidate the results. This was not the case. The difference in tangential strains as produced by applying equal tangential loads at the point of cutting and along the center line of the tool was negligible, less than 1 pct. The same was true when the test was duplicated with the longitudinal load applied both at the point of cutting and along the center line of the tool.

The calibration of a solid forged tool would be disturbed after each grind. This is not the case with an inserted type toolholder. Any diminution in the beam as calibrated may be restored by setting out the inserted tool an

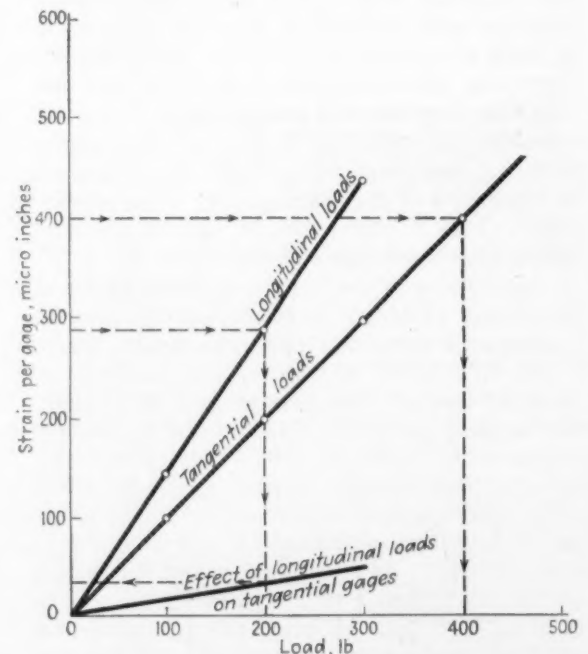


FIG. 4—Calibration curves based on data from the original dynamometer show the effect of longitudinal loads on the tangential gages, and the lack of effect of tangential loads on longitudinal gages. Tangential gage readings must be adjusted to compensate for the effect on the readings from radial loads.

amount equal to that removed through grinding.

The actual determination of load components by such methods of measurement as described is illustrated by the following example, using calibration charts, fig. 4.

It is assumed that for the longitudinal and tangential gages, the strain indicator measures differences of 570 and 860 microinches, respectively. Since these readings are double the actual strain, the true longitudinal strain is

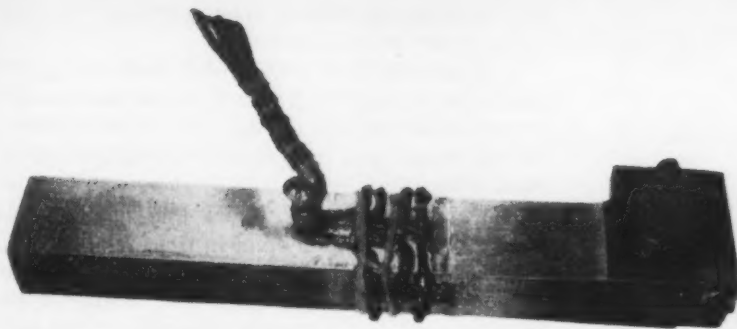
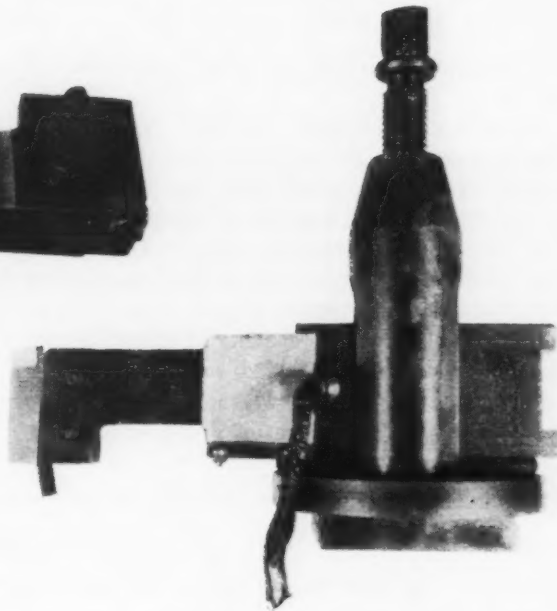


FIG. 5—Strain gages, mounted with an adhesive to the tool holder, are insulated first with a Dow-Corning silicone varnish, shown above, and then a light, formed metal shield protects the gages from chip abrasion and coolant splash, as shown at right.



285 microinches and the true tangential strain is 430 microinches per gage. By referring to the longitudinal stress curve in fig. 4, a longitudinal deflection of 285 microinches indicates a longitudinal load of 200 lb with an additional

effect of 30 microinches on the tangential gage.

From the measured deflection of the tangential gage, 430 microinches, it is necessary to subtract the longitudinal effect of 30 microinches. The resultant tangential strain of 400

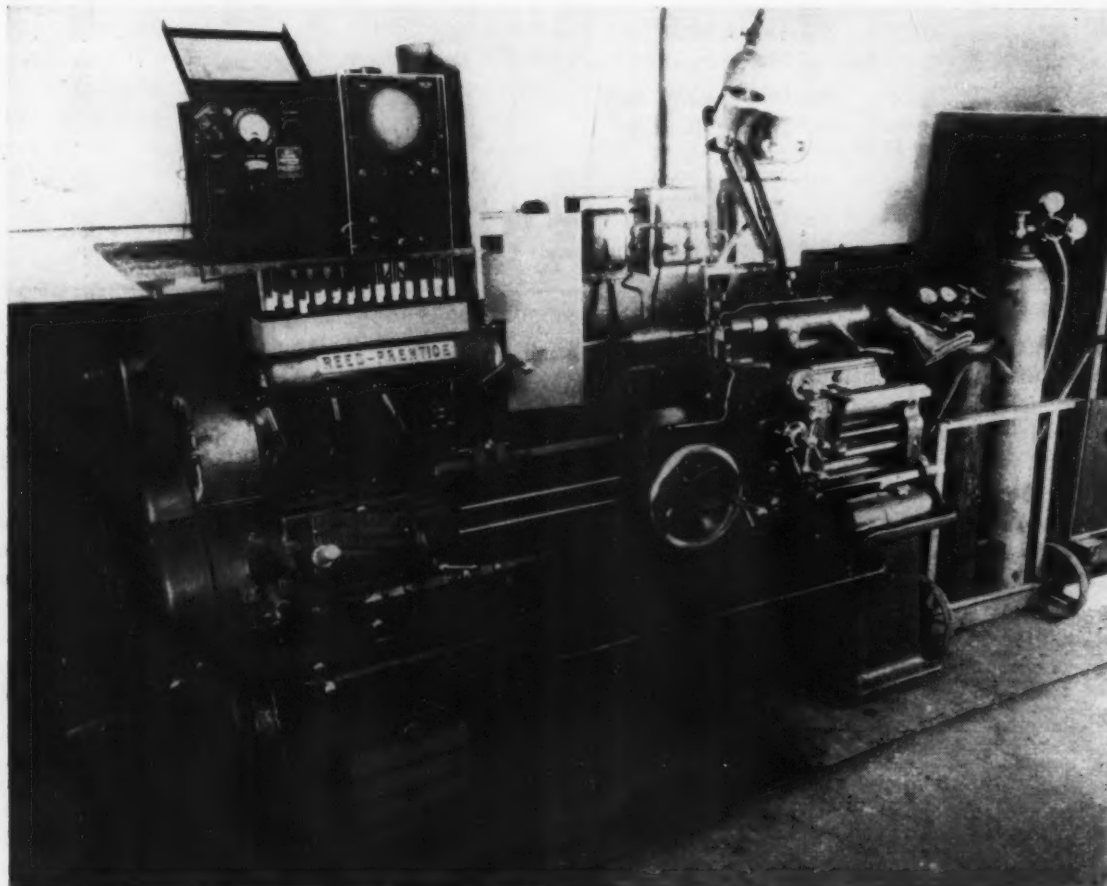


FIG. 6—Mounted behind the headstock of this 14-in. Reed-Prentice sliding gear-head type lathe used in the machining tests can be seen the SR-4 strain indicator and the oscilloscope.

Strain Gage Dynamometer

Continued

microinches indicates a tangential load of 400 lb.

When the tool shank with the revised SR4 strain gages was mounted on the lathe, a protective light sheet metal cover was fixed to the tool shank to guard the gages against possible chip abrasion and coolant splash. This guard also confined the movement of the free-floating temperature compensating gage. In addition to the shield, a protective coating of Dow-Corning silicone varnish was applied to the gages for waterproofing. Fig. 5 shows the tool and strain gages in the various stages of preparation.

tice, sliding gear-head type, supplied by the Navy Dept., Bureau of Ships.

In actual use this type of dynamometer gave satisfactory results. Table I shows results obtained under various conditions of cutting both on cold metal and in connection with Hot Spot machining.⁴

The material used in these tool loading examinations was nickel steel in the form of 3 in. diam rounds. Before machining the rounds were heat treated, quenched and tempered to 258 Bhn, and had a tensile strength of 120,000 psi with a yield strength of 93,300 psi. The analysis of the steel was: 0.41 C, 0.81 Mn, 0.015 P, 0.028 S, 0.25 Si, 0.20 Cr, 3.39 Ni, and 0.06 Mo. One of the cutting tools consisted of a Kennametal, 11SK150, toolholder with a Kennametal K3H carbide insert. The tool signature was: —7°

TABLE I

Tool Load Measurements by the Strain Gage Dynamometer in Hot and Cold Machining Tests

Cut	Lathe Settings			Temperature of Work at Cutting Surface, °F	Strain Gage Indicator Readings (Tool Load), Lb.	
	Speed, Rpm	Fed, Ipm	Depth of Cut, in.		Tangential	Longitudinal
Navy Specifications 46S 4F, Nickel Steel, 258 Bhn						
Hot.....	136	0.010	0.125	1100	320	240
Hot.....	136	0.015	0.125	1025	440	295
Hot.....	136	0.020	0.125	1000	565	330
Hot.....	136	0.010	0.156	1150	400	315
Hot.....	136	0.010	0.188	1125	480	315
Hot.....	136	0.010	0.188	1125	480	315
Cold.....	136	0.005	0.125	....	360	270
Cold.....	136	0.010	0.125	....	700	330
Cold.....	136	0.010	0.0625	....	400	195
Low Carbon (0.247 Pct) Steel, 121 Bhn						
Hot.....	73	0.010	0.183	1500	305	250
Hot.....	73	0.010	0.183	1200	375	280
Cold.....	73	0.010	0.0625	....	285	170
Cold.....	73	0.010	0.183	....	640	390
Cold.....	73	0.010	0.0600	....	305	180

During the initial turning operations, loads on the cutting tool continually fluctuated because of the alternate cutting and breaking of the chip from the workpiece. Under such conditions of varying strain, it was impossible to balance the Wheatstone bridge of the strain indicator. By inserting a cathode ray oscilloscope in the strain circuit, it was possible to obtain peak values of the loads on the "Y" or vertical axis. By setting the length of the vertical displacement of the oscilloscope pattern against a known deflection on the strain indicator, the tool strains to be measured on the oscilloscope were calibrated. When the chip came off the workpiece as a continuous ribbon, tool loads were steady. Under these conditions the strains were read directly on the strain indicator.

Fig. 6 shows the strain indicator and the oscilloscope as mounted on the lathe for ease of reading. The lathe was a 14-in. Reed Pren-

back rake, —7° side rake, +7° end relief, +7° side relief, +20° end cutting edge, +20° side cutting edge, and a 1/32-in. nose radius. Data on cutting the nickel steel, as well as for cutting a low carbon grade, are contained in table I.

Certain advantages and disadvantages became evident during the preparation and use of the strain gage tool dynamometer. Except for the initial cost of the strain indicator, about \$500, the cost of equipment is small. The strain gages, which are expendable, average about \$2.25 each. The strain gages are comparatively small and extremely sensitive, it being possible to calibrate loads to as close as 10 lb.

The preparation of the strain gage tool dynamometer is simple. Care must be taken, however, for measuring all three load components that all gages are mounted equidistant from the point of support. It is also important that all gages be mounted parallel to and along the tool

shank centerline. In mounting the gages standard machine shop tolerances should be satisfactory. The tool shank must be mounted in the tool post in a horizontal plane to avoid a possible source of error in the strain readings.

Lead wires running from the strain gages to the strain indicator must be kept free from any possible abrasive action of the chips, and must be kept from fouling in the lathe during machining. To reduce tool overhand to a minimum, strain gages used for measuring the deformation should be as small as possible.

Sensitivity may be controlled through the selection of the tool shank that forms the basis of the dynamometer. For light cutting, a small shank will provide the necessary high sensitivity, while for heavy cutting a shank of proportionately heavy cross-section will be adequate.

In the investigation of machining techniques

and the machinability of materials, the measuring of tool loads becomes a yardstick of comparison. It is desirable for those engaged with such problems that the yardstick be simple to use, inexpensive to prepare, give both instantaneous and average load values, and be accurate. The strain gage tool dynamometer as described in this article meets these requirements. With care in preparing and the appropriate handling as becomes delicate equipment, the strain gage tool dynamometer can be an aid to the metal cutting field.

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¹ United States Steel Corp. pamphlet, Machinability Exhibit, 1940. National Metal Congress, Cleveland.

² "A Study of the Turning of Steel Employing a New Type Three Component Dynamometer," by O. W. Boston, ASME Transactions, January 1936.

³ SR4 News Letter, the Baldwin Locomotive Works, Baldwin Southwark Div., Philadelphia. Vol. 1, No. 3, November 1944.

⁴ "Hot Spot Machining," THE IRON AGE, July 21, 1949.

New Books

"Bergwerk und Probierebuchlein," translated from German by A. N. Sisco and C. S. Smith. The *Bergbuchlein* is a book on mining geology and the *Probierebuchlein* a work on assaying; both were first published about 1520 and are especially valuable for their scholarly and cultural attributes. They are interesting also in that they serve as a comparison of medieval and modern theories and techniques. American Institute of Mining & Metallurgical Engineers, 29 W. 39 St., New York. \$5.50. 190 p.

* * *

"Hardenability and Steel Selection" by Walter Crafts and John L. Lamont. Book presents co-ordinated pattern of hardenability theories and calculations which have been responsible for steel being purchased by hardenability instead of by chemical composition. Hardenability calculations represent quantitative prediction of behavior for each step in process of economically developing reliable qualities in finished products. Pitman Publishing Corp., 2 W. 45 St., New York. \$5.50. 260 p.

* * *

"Welding and Cutting Manual." Book useful for reference and instruction for repairmen, farmers, garage mechanics and maintenance men. Contains sections on use of oxyacetylene equipment, methods of welding, cutting, heating, bending, brazing and soldering, and numerous hints, shortcuts and other helpful material. Linde Air Products Co. 30 E. 42 St., New York. \$1.80. 208 p.

* * *

"Mines Register." 1949 issue, vol. 23, contains latest information on 5000 active nonferrous

mining companies in the Western Hemisphere, giving location of mine, history of firm, names and addresses of officers and mining personnel, purchasing agent, companies capitalization, earnings and dividends of past few years, ore reserves, description of property and equipment, production figures and number of men employed. Atlas Publishing Co., Inc., 425 W. 25 St., New York 1. \$25.00. 730 p.

* * *

"Steel Electrical Raceways." A single complete and convenient reference on rigid steel conduit and electrical metallic tubing for installers, inspectors, designers and engineers. Book contains basic dimensional data, NE code tables for conduit wiring installations, and practical suggestions for the handling and installation of conduit materials. Electrical distribution Systems Committee, American Iron & Steel Institute, 350 Fifth Ave., New York 1. \$1.00. 130 p.

* * *

"Marketing and Distribution Research," by Lyndon O. Brown. A revision of "Market Research and Analysis," by same author, shows how the application of marketing and distribution research methods can improve the efficiency of marketing operations and reduce the cost of distribution. Emphasis has been placed on specialized applications, such as product and opinion research, with several chapters devoted to techniques recently developed for each of these fields. Ronald Press Co., 15 E. 26 St., New York 10. \$5.00. 600 p.

How Ford Manufactures STAINLESS HEADLAMP RIMS

By FRANK W. GAWRINSKI

Manager, Flat Rock Plant,
Parts and Equipment Mfg. Div.,
Ford Motor Co.



SUMMARY: Welding, flash trimming, forming, spinning, and polishing of stainless steel headlamp rims or doors at Ford is a high speed, mechanized series of operations. Some outstanding features of this production line are described in this article.

RIMS for headlamp glasses, otherwise known as headlamp doors, constitute one of the lamp components produced in the Flat Rock, Mich., plant of Ford Motor Co.'s Parts and Equipment Manufacturing Div. These rims are made from 21-gage stainless steel that is purchased in coils 1.815 in. wide and fabrication is so done that there is virtually no waste other than the small amount of flash formed where the ends of the strip are welded together.

Manufacture starts with cutting strips 27 $\frac{3}{4}$ in. long from the coil. The strips are then placed one at a time in the Ford welder, fig. 1, where the two ends are butt welded together at the rate of about 10 to 12 pieces per min. Ends of the strip are positioned by hand in the lower electrode. When the foot switch is pressed, the upper electrode moves downward and the weld, automatically timed, is produced and the machine opens itself when the weld is completed.

Rings thus produced are dropped into a chute in the background of fig. 1 and go to the die, fig. 2, where weld flash is sheared off by rocking blades that move in opposite direction after the work is clamped by downward pressure on the lower shoe that pulls the ring taut. The die is

operated by a P2 Ferracute press, the blade holders being rocked by links having slots that engage eccentric pins as the links are moved down and then up as the press closes and then opens.

To coin or flatten the weld and reduce its thickness to that of the original stock, the weld is struck a single blow while supported on a



FIG. 1—After stainless steel strip is cut to length, the ends are butt welded in this Ford-built welder to make a ring from which a headlamp door is subsequently formed.

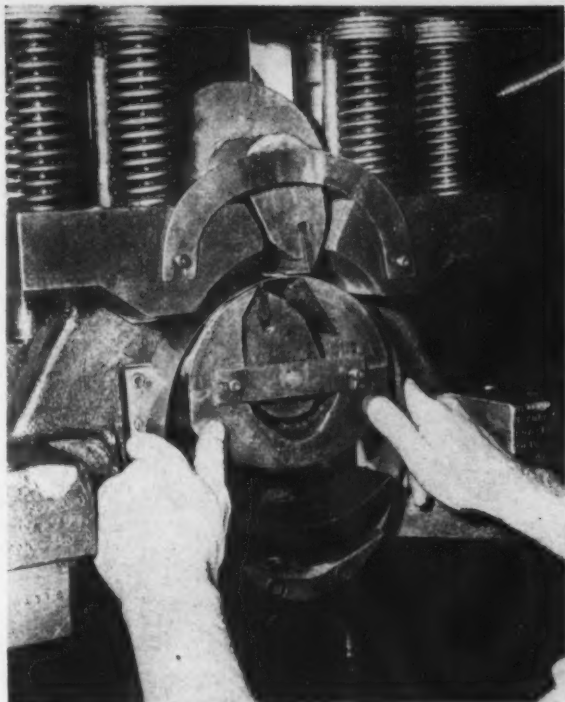


FIG. 2—Welding flash sheared from weld by rocking blades in die after shoe at bottom pulls ring taut. Die used in P2 Bliss press.

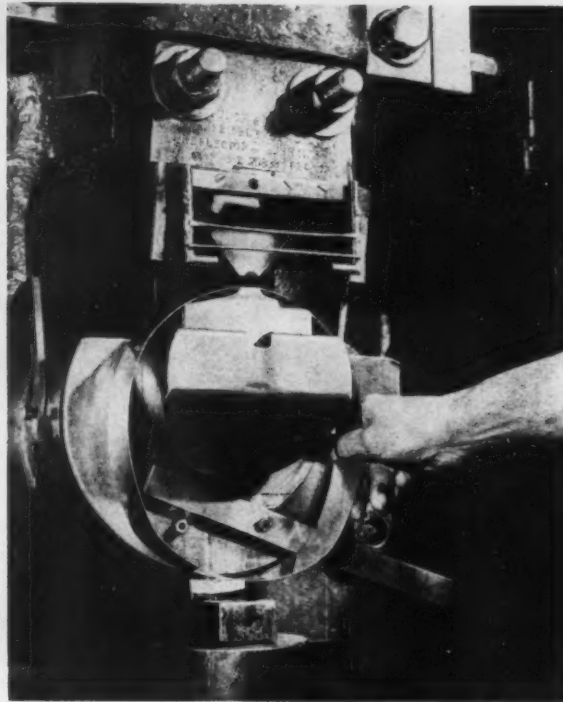


FIG. 3—After flash is removed from the weld, it is struck or coined while held over this horn die in a PA3 Ferracute press.

horn die, as shown in fig. 3, in a PA3 Ferracute press. This operation makes the ring ready for drawing or dishing to a rather flat C-shaped section. Before this is done, however, a Tannerite draw compound is applied to each piece. The die is used in a No. 5 Bliss press and the production rate is about 10 pieces per min. As parts come from this press, they are hung on a chain con-

veyer that carries them through a washing machine to remove the draw compound.

As the drawing is performed by solid steel dies, the dished shape cannot have an undercut. Since an undercut is required, however, the washed parts are transferred to the No. 56 Toledo press setup shown in fig. 4 and are put through the die. This die is equipped with a rubber ring



FIG. 4—After rings are given initial dish, they are passed through the die in this No. 56 Toledo press. Punch has rubber ring that expands dished piece and produces an in-turned lip at top edge.



FIG. 5—To roll the top edge of headlamp doors inward, producing a return bend as the holding die is elevated by an air operated plunger, this spinning die is used.

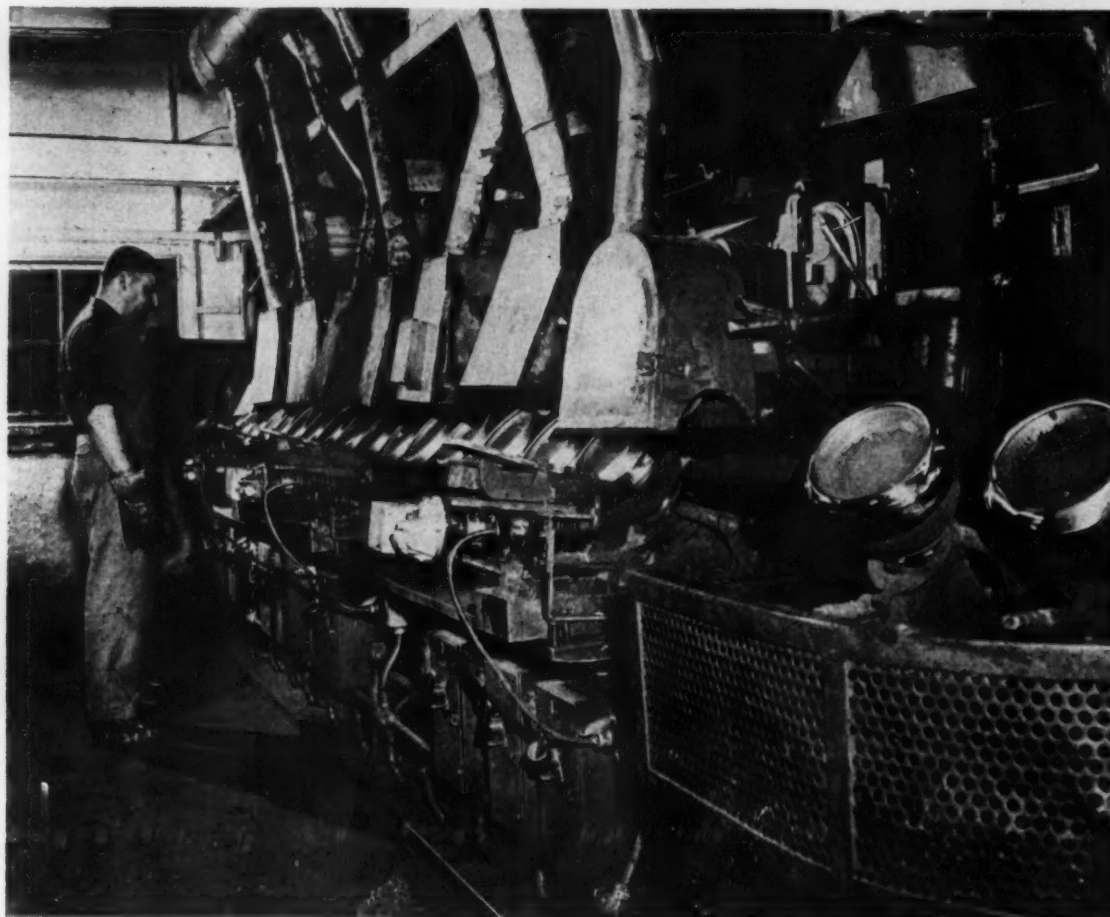


FIG. 6—Headlamp doors are polished, buffed and colored at the rate of 400 an hr while being advanced on rotary carriers under 16 successive wheels of this Robinson machine.

the punch. The ring expands as pressure is applied, producing a bulging action that forms the slight undercut near the top edge of the ring. When, as the press starts to open the die, pressure on the rubber is released, the rubber ring contracts and clears the piece. Production totals about 775 pieces an hr through this die.

Although the die turns the top edge of the ring inward, it does not produce the U-shape return bend required. To accomplish this, a spinning operation is done in the 21-in. Cincinnati drill press equipped with a supporting die and with the four-wheel spinning tool shown in fig. 5.

This tool rotates continuously, but is not brought into use until the die is elevated by an air cylinder below the table of the press. Upward pressure applied by the air causes the spinning tool to roll the edge inward and complete the return bend, as desired. The operator merely loads and unloads the die and operates the air valve that controls raising and lowering of the die. About 15 pieces a min are spun in this setup.

Spinning gives the piece its final form, but polishing and buffing of the external surface remains to be done. The first polishing operation is done with the work turned and rocked by hand against a 120-grit belt of a Hammond machine having a solid driving pulley and a flexible buff or soft pulley at the polishing end. This buff

enables the belt to conform more or less to shape of the piece. About 8 pieces a min are thus polished.

Further polishing is done on the Robinson automatic polisher, shown in fig. 6. The polisher is equipped with carriers that advance the work around four sides of the machine under a series of wheels set at different angles so as to contact all surfaces. The carriers rotate the work as they advance around the track provided. At one end of the machine, there are no wheels and carriers cease to rotate while being unloaded and reloaded.

On this machine, the first five wheels are coated with 180 grit and are shaped to fit the piece. Then come nine buffing wheels and finally two coloring wheels. Each wheel is kept supplied with grinding, buffing or coloring compound fed automatically in stick form. About 400 pieces an hr pass through this machine.

Before the doors thus produced and polished are ready for shipment, a small press is used to pierce one screw hole in each piece and each door is given a final coloring while held on a chuck that is rotated as the operator presses the work against the coloring wheel. About 5500 doors per eight hr shift are given their final color on this wheel.

Nodulizing Gray Iron with Dilute Magnesium Alloy

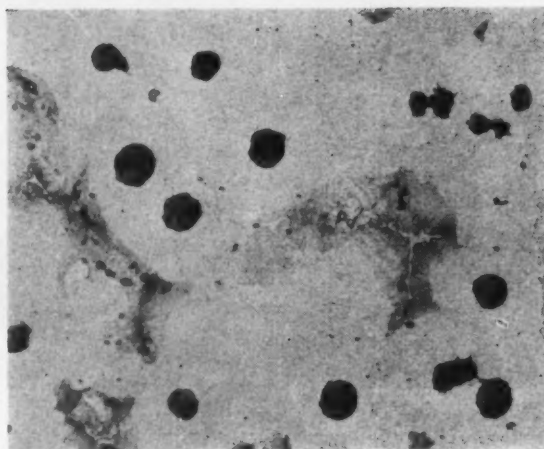
A DILUTE magnesium alloy for use in the production of nodular iron castings, developed by the Electro Metallurgical Division of the Union Carbide & Carbon Corp., contains 7 pct Mg, 45 pct Si, remainder Fe.

Results of many foundry tests have indicated that any hazard of magnesium addition are minimized by this alloy and that it may be employed without extensive modification of existing foundry practices, according to the company. Since the alloy acts as an inoculating as well as a nodulizing agent, no further additions are required for the production of ductile castings under some circumstances.

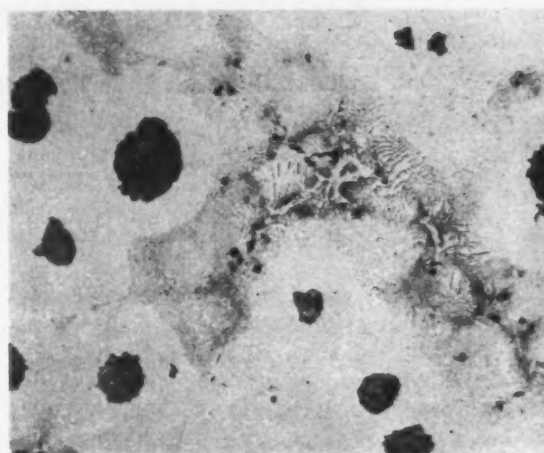
Recovery of magnesium from the dilute alloy is comparatively high, the actual recovery depending upon a number of factors, including temperature of iron at time of addition, sulfur content of the iron and exposure to oxidizing conditions after addition. In a recent test, employing three different pouring temperatures, the following results were obtained: 2650°F—35 pct Mg recovery, 64,800 psi tensile strength; 2550°F—42.6 Mg recovery, 82,800 psi tensile; 2450°F—65 pct Mg recovery, 87,000 psi tensile.

Another nodulizing agent cited by the company as showing promise is a briquetted mixture of magnesium and silicon-zirconium. A laboratory test of the effect of temperature on this addition agent and an inoculant gave the results listed in table I.

Most nodulizing agents require the addition of an inoculant for maximum toughness and ductility (see fig. 1). Two widely used inoculating agents are 75 pct ferro-silicon and SMZ,* a complex silicon-base alloy. It has been deter-



A



B

FIG. 1—Microstructure of gray iron (A) as treated with 0.47 Mg and inoculated with 0.20 pct SMZ; (B) treated with 0.35 pct Mg, no inoculation. Etched with picric acid. 250X

TABLE I

Effect of Pouring Temperature on Magnesium Recovery

Pouring Temp., °F	Mg Recovery from Alloy, Pct	Deflection, In.	Graphite Structure
3160	6.6	0.34	Nodules (Primary Cementite)
2965	10.0	0.27	Nodules (Primary Cementite)
2800	18.0	0.25	Nodules (Primary Cementite)
2615	18.0	0.80	Nodules
2425	19.0	0.57	Nodules

mined that addition of the inoculating agent must follow the nodulizing agent; if added before the nodulizing agent, little, if any, effective inoculation results. The inoculant may be added with the nodulizing agent, but better results are generally obtained by a subsequent addition of the inoculant.

*Trademark of Electro Metallurgical Div., Union Carbide & Carbon Corp.

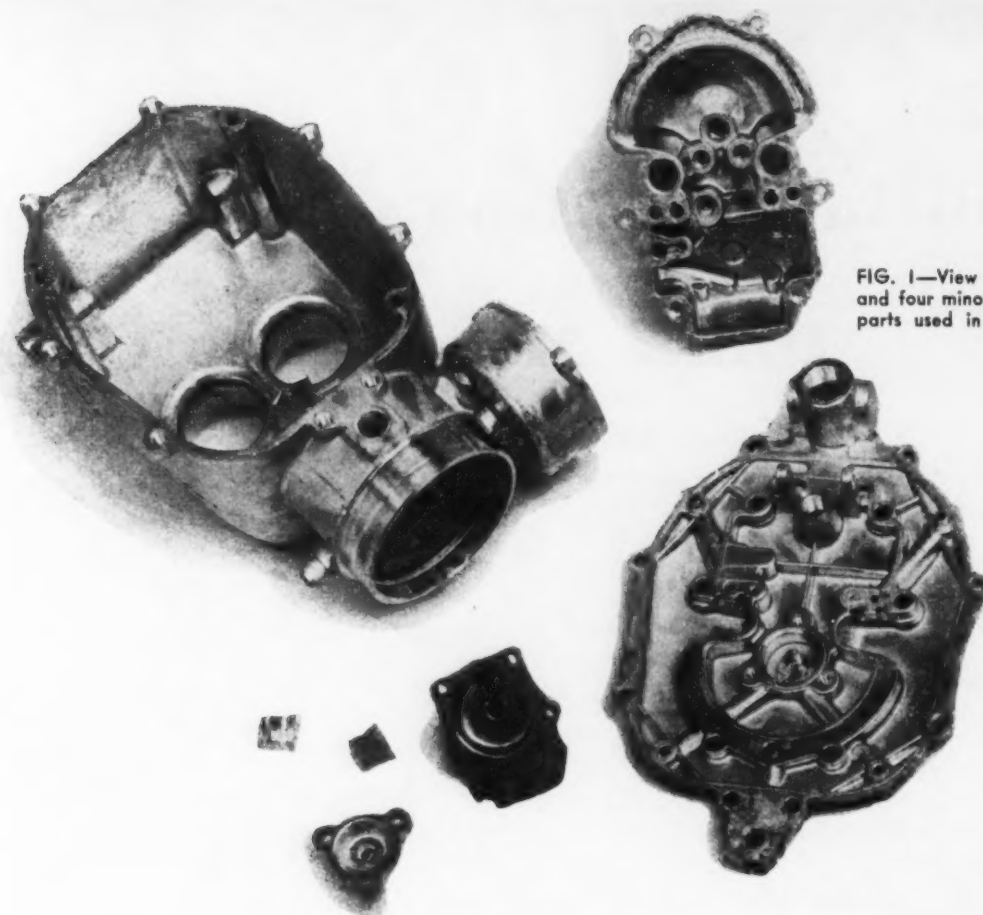


FIG. 1—View of the three major and four minor zinc alloy die cast parts used in a GM carburetor.

Casting and Machining Zinc Alloy Carburetor Parts

By
HERBERT CHASE
New York

ONE of the latest and fastest setups for carburetor production, as well as the making of other die castings, has been installed at Rochester Products Div., General Motors Corp. The carburetors, which are used on the new Olds Rocket V-type engine, feature inner and outer die cast to bowls having a common cover to which most of the mechanism is attached.

Die cast components of the carburetor, as viewed from top and bottom, are shown in fig. 1. All are No. 5 Zamak alloy castings, produced on

No. PM1½ or No. 2 Reed-Prentice die casting machines of which one is shown in fig. 2. This alloy is made up in melting furnaces of 4000-lb. capacity. The weight charged runs from 1800 to 2800 lb, the slabs being added to a heel of alloy with which a molten hardener has been mixed.

Ingots of prealloyed hardener, to provide in the zinc alloy 1.0 pct Cu, 4.0 pct Al, and 0.06 pct Mg, are melted in weighed amounts in a separate melting furnace, of the tilting type. The hardener is transferred in a heated ladle to the zinc fur-

SUMMARY: Producing and finishing of zinc alloy die cast automobile carburetor parts are kept at a high level, averaging up to 500 parts per hr. through the effective use of production line equipment. Tote boxes and sectioned conveyer belts move parts from casting machines to trimming, machining and finishing operations where dial fixtures and multiple operations are extensively utilized.



FIG. 2—A die cast carburetor part being removed from a die casting machine. At the left is a press for shearing the sprue and flash.

naces and, when the charges in the latter are melted and assayed spectrographically to insure strict compliance with ASTM specifications, they are syphoned as needed into trolley ladles for transfer to the holding furnaces at each die casting machine. These ladles are kept hot over gas flames when not being used to transfer metal.

Casting follows conventional practice using 1000 psi hydraulic pressure on 3 in. rams to actuate 2½ in. plungers in contact with the molten



FIG. 3—A sectioned conveyor belt between rows of 6 die casting machines moves the various castings to machining operations.

zinc. This affords an injection pressure on the molten metal of about 1400 psi. Casting temperature is maintained automatically by thermostats at the level best for the particular casting, and averages 785°F.

The three largest carburetor die castings are produced in single cavity dies partly because of the complex coring required. As the casting cycle is carried through automatically, once the starting button is pressed, the operator has time to trim some of the castings, hence a Hydro-Pierce press is placed next to some casting machines (see fig. 2). After starting a cycle, the operator trims the casting made in the prior cycle and puts the trimmed casting in a tote box. Usually, the cut off sprue is dropped into the holding furnace

of the machine but, in other cases, the sprues are returned to primary melting furnaces for mixture with new metal.

In the case of cover castings for carburetors (see fig. 1) it has been found that less warpage occurs if castings are allowed to cool to room temperature before trimming, hence they are toted to the machine shop for trimming on a No. 4 Bliss press. Flash in cored holes of all castings is pierced out in the same operation as trimming where the location of this flash is favorable for so doing.

Fuel pump castings are among other zinc alloy

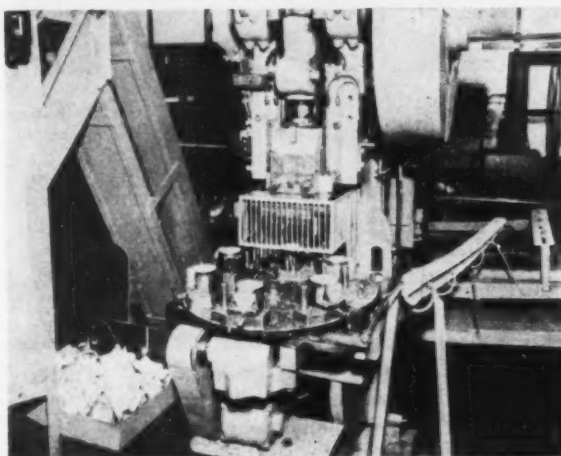


FIG. 4—Six station dial fixture on press for trimming flash from castings. Parts are taken from bin at left and placed in indexing fixture.

parts that are produced in even larger quantities than carburetors. Such castings, which are not likely to be injured by conveyerized handling, are transferred to a belt conveyer, that passes between two rows of casting machines after the castings are taken from the die and are trimmed. The belt shown in fig. 3, is divided into six channels that keep different castings separate and deliver the castings to another belt in the machine shop.

From the second belt, the castings are dropped off at various machining stations and fall onto elevating belts that deposit the castings in hop-

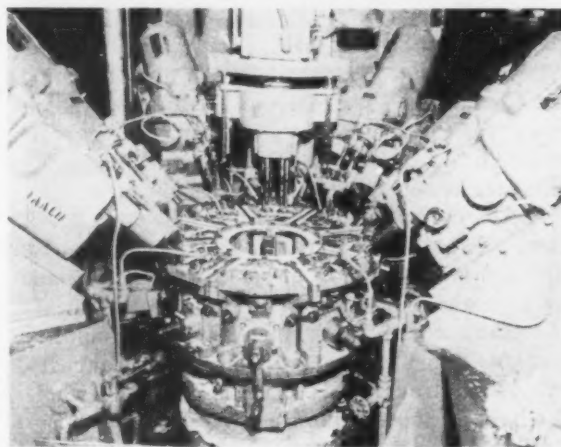


FIG. 5—Eleven multiple drill heads drill, tap, ream and countersink carburetor float bowls at successive stations.

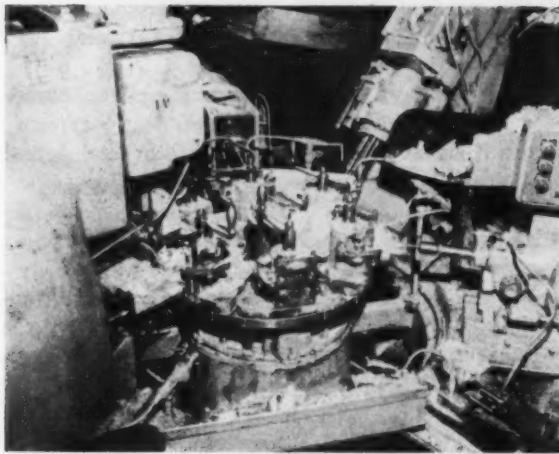


FIG. 6—Another multiple drilling setup. At lower right is a fixture, not mounted on dial, for punching 2 holes in casting by air operated slide.

pers at the proper machine. After processing at these machines, the parts are returned to the belt directly down chutes or via separate elevating belts and are transferred to other machines or to tote boxes.

A typical setup for trimming is shown at the trim press in fig. 4 with the large belt in background and an elevating belt in the housing at left. The elevating belt keeps the hopper at the left supplied and the press operator picks castings from the hopper outlet. These castings are loaded one at a time on the dial fixture which carries each casting under the punch before it descends following each indexing. As castings are unloaded after trimming, they are put in the bar slide at right, down which the castings are pushed and are discharged onto the main belt again for transfer to the next station. A setup of this kind trims 990 castings an hour.

Aside from flash removal in trim dies, a large proportion of machine work on die castings is done by small rotary tools such as drills, taps, countersinks and reamers. Wherever feasible, these operations are done simultaneously or in quick succession in a single setup to minimize handling.

In general, a series of operations is performed on dial fixtures that index automatically and have one free station for loading and unloading between indexing. Kingsbury heads are commonly used because they are readily arranged to advance and retract the tool automatically in correctly timed relations. Often, multiple-spindle units are attached to the Kingsbury head.

In the eight-place dial setup, shown in fig. 5, there are 11 heads of which only one, operating six taps, is vertical. Others are horizontal or are set at angles for holes similarly disposed. In all, 16 tools that drill, ream, tap and countersink are brought into play, yet 400 pieces an hour are processed through this machine and the whole line handles 400 to 500 an hr.

In another setup, where eight box fixtures are used, there are 12 heads that do similar operations on holes not accessible previously. A six-

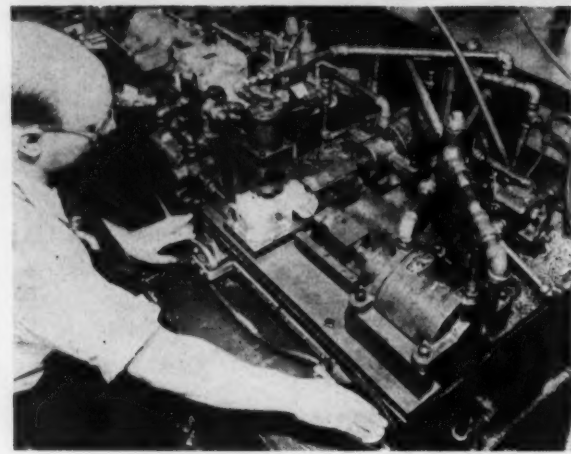


FIG. 7—An air operated fixture in which 3-way broaching operation removes flash from holes and trims the contour of thermostat housing.

place dial is used in the setup illustrated in fig. 6. In this case, the ends of bottom tubes are spot faced, several holes are tapped and one is drilled. Some holes have steps and two threads of different diameter are tapped.

At the lower right is a fixture not on the dial. It includes two pins over which the two tubes projecting from the bottom of the casting are placed. Then, when an air valve is operated, two punches on a slide are advanced and pierce holes, one through the side wall of each tube. The operator of the machine has time to perform this operation as well as to load and unload the dial fixture.

After the operations in the three setups just described are completed, castings are passed to a table where necessary burring is done at a total of 30 points on each casting. All ten of the burring tools are operated by portable air motors turning at 18,000 rpm and are held in fixed position with the tools projecting downward. Each casting is shifted under each tool in succession. This setup easily allows a pace of 400 to 500 pieces an hr. When the castings leave this table, machining is completed and, after blowing out and washing, the bowls are ready for final inspection.

Outer bowls go through a somewhat similar series of machining operations. A machine, besides doing several drilling, reaming, and tapping operations from four sides includes, after re-chucking, a hollow milling operation that turns the OD and faces and chamfers the air horn. A hollow mill is moved vertically downward to perform this operation. Two hundred pieces an hour are machined in this setup.

A special air clamping and air operating fixture, shown in fig. 7, is employed to remove flash from horizontal holes and to trim the contour of the thermostat housing which later becomes an integral part of the outer bowl casting. After the piece is clamped, air plungers advance the punches and broaching tools from three sides at once. This fixture handles 250 pieces an hr and performs, at one time, several operations such as often are done separately.

Submerged Melt Welding

Stainless Clad

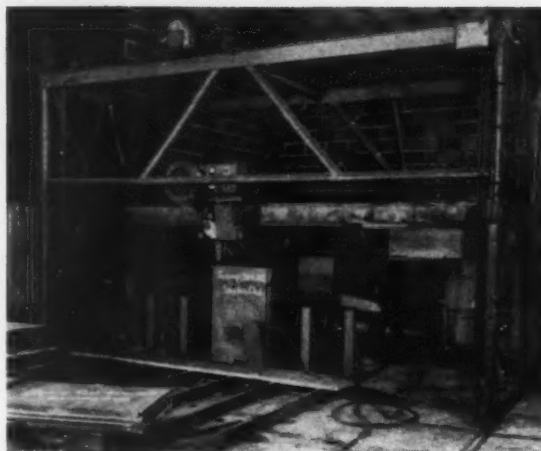
BONDING stainless to carbon steel with automatic hidden arc welding is doubling the speed of welding the clad steel produced by Jessop Steel Co., Washington, Pa. Jessop produces stainless clad by the patented Armstrong Process of welding the layers of stainless steel between layers of carbon steel. The company has increased the welding speed to 11 to 15 ipm by installing a standard automatic submerged arc welding head manufactured by Lincoln Electric Co., Cleveland. Average speeds with the former method were 5 to 7 ipm.



FIG. 1—Welding sandwiches for the production of stainless clad steel is twice as fast by submerged melt welding as with previous method used.

In addition to simplifying the fabrication of the composite units, yield has been increased up to 10 pct because the oversize plates required can be reduced and waste eliminated. Uniform depth of penetration over long lengths of welds practically eliminates the safety factor previously allowed for a variation of weld penetration. This saves $\frac{1}{4}$ in. around the periphery of every assembly. Further wastage in producing the Armstrong type of clad is eliminated as no allowance is necessary for a welding groove previously required. The automatic process produces required penetration without necessitating a weld groove.

Fig. 1 shows the method of making welds between the metal sections that are flush with each



Setup at Jessop Steel Co., Washington, Pa., for handling and welding stainless clad rolling units. The Lincolnweld head is mounted on a moving and adjustable gantry.

other. Sections have been tacked welded. Two single pass welds are made, as shown in fig. 2. Sensitive control of the unit permits uniform penetration without danger of burning through.

The weld used on these composite assemblies must be of a uniform high strength quality. The sandwich is subsequently heated to 2200°F and rolled to give reductions as great as 20 to 1. Welds made with the hidden arc process have withstood these subsequent hot rolling operations with excellent results and the process is now standard for clad metal preparation at Jessop Steel.



FIG. 2—Two single pass welds are deposited on each edge of the assembly. Uniform penetration eliminates wastage previously encountered in the $\frac{1}{4}$ in. allowance necessary for a safety factor. Weld can also be made without the necessity of a groove.

Metal Tube Bases Reclaimed

on a Production Basis

By R. J. STANTON

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Brooklyn



SUMMARY: Reclamation of 3600 usable metal tube bases an hour, with one operation and one high frequency generator, is described. Ingenious fixturing, plus an extremely short heating cycle, makes profitable the reclaiming, by radio manufacturer, of these nickel plated aluminum and brass tube bases.

ONE large eastern radio tube manufacturer, confronted with relatively high rejection rates in spite of almost ideal manufacturing methods, found that reclamation can pay off. Induction heating, good fixture design and a practical use of air cylinders now enables this manufacturer to reclaim more than 3600 nickel plated brass and aluminum tube bases an hr with one operator and one high frequency generator.

The method devised to separate the glass envelope, tube elements and adhesive cement from the metal bases employs a 10 kw output high frequency generator operating at about 375 kc. The adhesive is completely broken away from the metal base by the rapid expansion obtained through a short heating cycle at a high power

level. Controlling the amount of heat prevents discoloration.

A rotary fixture, shown mounted on a table in fig. 1, is equipped with eight pockets for locating and holding the tube bases. A double acting air cylinder indexes the fixture and is hooked up with a multi-circuit electronic timer to maintain a one sec operating cycle which includes heating, ejection of the tube elements and removal of the reclaimed tube base.

Each of the eight pockets, details of which are shown in fig. 2, is provided with a 3-turn induction coil which is connected in turn to a pair of stationary contacts. Water is fed to the coils in a series parallel arrangement through a pair of rotating bushings. When moved into heating position each coil makes contact with a pair of movable contacts attached to the work leads com-



FIG. 1—Eight-station rotary fixture for removing metal bases from faulty glass tubes. Shown at lower left are rejected tube and salvaged metal base.

ing from the secondary of the radio frequency transformer.

These movable contacts are tipped with a tungsten carbide copper alloy of 50 pct conductivity, to provide trouble free operation and withstand the heavy current. The generator is synchronized with the indexing mechanism so that it will cut out during the short indexing cycle and immediately cut in as the next position is reached.

The tube locating pockets are made of canvas

base phenolic resin, machined on the ID to provide clearance for the tube, and on the OD to provide a light press fit for the 3-turn induction coil. At the bottom of each pocket the tube is supported on a 1/16 in. thick tungsten carbide ring brazed into a counterbore in the water cooled copper disc. These carbide rings, with radius ground to fit the tube base, provide good wear under the required high production conditions.

As the fixture is indexed, one of the tube hold-

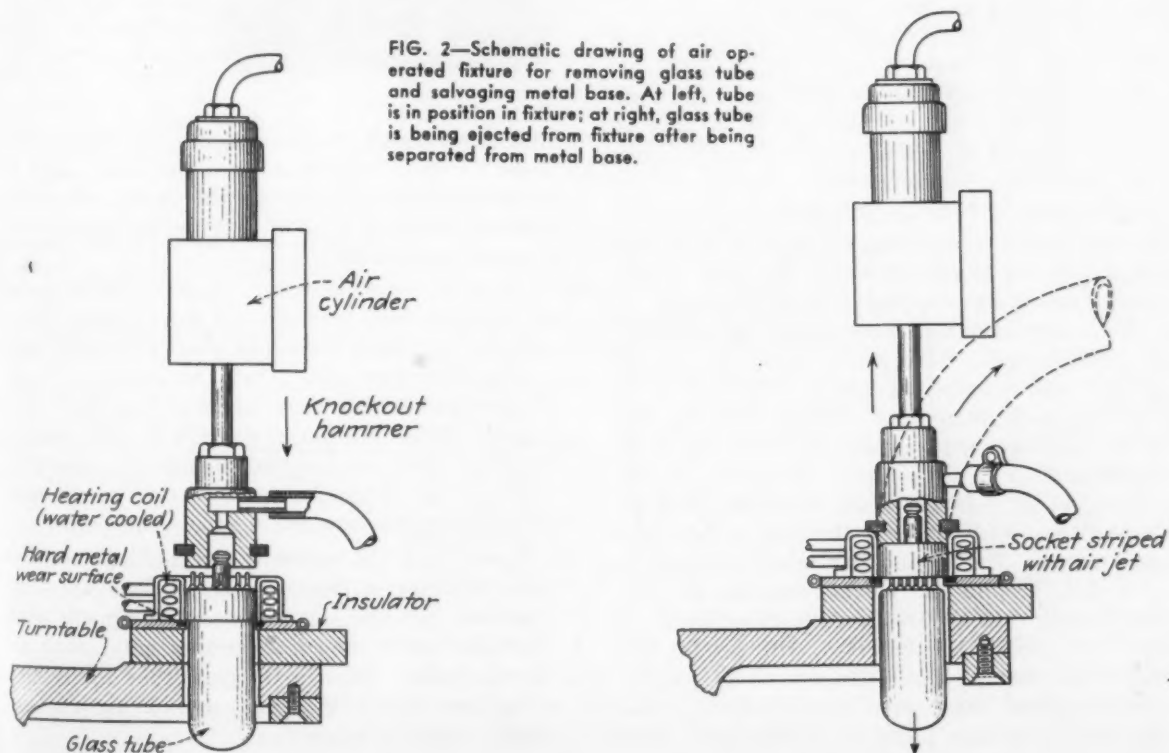


FIG. 2—Schematic drawing of air operated fixture for removing glass tube and salvaging metal base. At left, tube is in position in fixture; at right, glass tube is being ejected from fixture after being separated from metal base.

ing pockets comes into position and coil contact is made for a $\frac{1}{2}$ sec heating cycle. The pocket is then indexed to the next position where a rubber-tipped plunger, operated by another double-acting cylinder, strikes the contact pins of the tube and drives them flush with the rib in the tube base. The pins are too short to come clear of the base with the plunger stroke and a strong blast of air from a $\frac{1}{2}$ in., 2-way valve explodes all tube elements clear of the base and into a tote box under the fixture.

The fixture is indexed to the next station where the exhaust stroke of the indexing air

cylinder is utilized to blow the reclaimed metal base into a gooseneck tube located directly over the pocket and leading to a tote box near the generator.

A reclamation rate of up to 3600 bases an hr is maintained and discoloration is prevented by the electronically timed short heating cycle. The air cylinders and 2-way valve provide the fast action required for the high production and short cycle and at the same time avoid any marking or scratching of the tube bases. Loading of the pockets with defective tubes is the only manual attention required on this set-up.

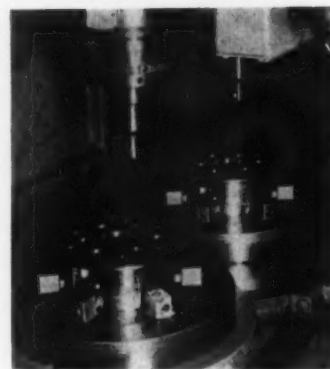
Precision Boring of Transmission Parts

IN the manufacture of the Buick Dynaflo transmission, one of the components is a planet carrier built up of pairs of SAE 5140 steel forgings that require several high precision machining operations. After most of the operations are performed on each forging, each pair is assembled and the front or cover position is doweled to the rear part. At this stage it is necessary to bore a set of six holes, previously drilled undersize, through the flanges between which the gears are later assembled.

Three holes, 0.607 to 0.608 in. diam, are located 120° apart and three holes, 0.487 to 0.488 in. diam, are similarly spaced equidistant between the larger holes. All six holes are on a circle of 1.6553 to 1.6573 in. radius, but the chord between adjacent holes is held to 1.510 in., $+0.004$, -0.001 in. Both sets of holes are precision bored on two-spindle Ex-Cello machines equipped with indexing diaphragm chucks in which the work is precisely located and clamped (see photograph).

Each spindle carries a roughing and a finishing carbide tool. After the first of each set of three holes is bored, the tools withdraw automatically and each chuck indexes 120° for the second boring, repeating the cycle for the third operation.

For the three larger holes, the tools bore the front flange and continue through to bore the rear flange. The boring bar is stiff enough to hold size, despite the length required for the total depth. For the smaller holes, the bar is too small to provide the required stiffness for the operation through both flanges. Consequently, the three front flange holes are bored first, while the front and rear parts are assembled. Then

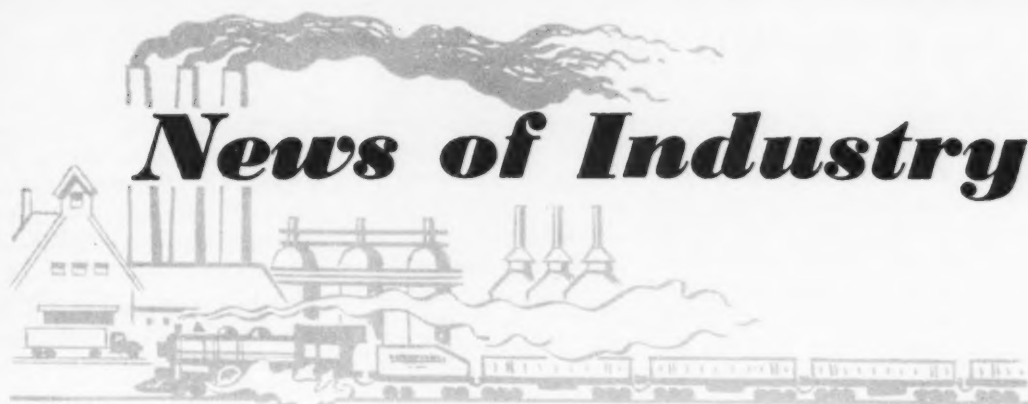


A two-spindle Ex-Cello is used to bore 6 holes in front planet carrier of Dynaflo transmission. The 3 larger holes in front and rear parts are bored in one setup, but smaller holes require reversing faces of parts to assure accuracy.

the front flange is removed and the same tools bore the rear portion. When the front half is again assembled, holes in the front and rear flanges are still in line because dowels assure correct positioning.

To make sure, however, that the same pairs of front and rear portions are put together after hole boring, each set is numbered serially and odd number parts are always done in one chuck while even number parts are bored in the other chuck. With the setup described, 230 assemblies per shift are handled through the machine boring the large holes and 150 assemblies through the machine boring the small holes.

Because of the necessity of holding specified hole diameter as well as correct hole spacing, checking is done in a fixture equipped with Sheffield Precisionaire gages that enter each of the six holes. Bobs in the glass tube indicators must come within the limits marked for the assembly to pass inspection.



Heard 'Round the World

New York—In a quiet 29 min speech last week Sir Stafford Cripps, British Chancellor of the Exchequer, fired an economic shot heard 'round the world. He told the world Britain had devalued the pound 30.5 pct. His government had decided it was worth only \$2.80 instead of \$4.03, which had long been regarded as a phoney value wherever money could be traded freely.

The Chancellor said the immediate effect of devaluation is expected to be a rise in exports to dollar countries. Unless that happens the whole purpose of devaluation will be lost.

Economists and financial men had long insisted this must be the first move in any program which could hope to get Britain started paying her own way. Although many business men had been expecting such a move, its announcement was a well-guarded secret. More news on devaluation can be found on pp. 26, 30, 40, 48 and 89.

Senate Passes Arms Bill

Washington — The Senate has passed legislation granting the entire \$1.3 billion asked by President Truman to arm friendly nations against Communism.

The House trimmed the request to \$819,505,000. Conferees from both upper and lower chambers are attempting to resolve differences still remaining between the two bills.

Industry Reaction to Devaluation Mixed

British move is regarded as necessary evil . . . It might give ERP a boost . . . Still it might hurt some American firms . . . Few cancellations noted—By BILL PACKARD

New York—Some American business men reacted to news of Britain's devaluation of the pound violently. Others were cautious. But all were vitally interested.

Some saw cheaper British goods invading markets which had been theirs. Others saw severe price testing on American goods. Some wanted to wait for the smoke to clear before making predictions. But all agreed that this momentous decision would affect trade relationships throughout the world.

Most observers agreed that the move would be a boon to sales of British products in this country, as well as other parts of the world. Other countries which followed Britain's move by devaluating their own currencies were seen seeking the same type of trade advantage for themselves.

Move May Help ERP

The move will probably brighten prospects for success of the European Recovery Program. It is expected to increase intra-European trade among ERP nations, in addition to helping them penetrate dollar areas with their goods. If these countries are to become self-supporting by 1952, they must be able to match imports from the

U. S. with exports. These are aims of ERP.

Still, this didn't keep some firms here from being gravely worried about loss of business, both at home and in the export market. Other firms were not so worried. They pointed out that European products may still not be available in the quantity or quality wanted in these markets. Agreement was unanimous that selling is going to be an even tougher job. One exporter said, "We have done some talking about competition, but now the competition is real."

Few Orders Cancelled

But there was no stampede of price cutting by American firms to meet this competition. Instead there was a lot of anxious waiting to see what price comparisons would eventually develop. One export firm hinted that it might be forced to cut prices later. But it

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REA Approves New Loans

Washington—The Rural Electrification Administration recently approved loans of about \$2.5 million to seven cooperatives in seven states.

History Is Made

ON the evening of Sept. 18 Sir Stafford Cripps, the British Chancellor of the Exchequer, stood before the mother of all Parliaments and made a statement whose full meaning only those steeped in the history of nations could appreciate. He confessed that Great Britain could no longer play under the prevailing rules of international trade. The going had become too tough. It was more than the British Empire—what was left of it—could bear. The terms of trade, the basis on which nations dealt with each other, would have to be changed in favor of Great Britain.

The bare bones of the statement are no longer news. The British pound was officially devalued. The verdict of the open market, i.e., that sterling was not worth \$4.03 in American money; that, in fact, it was worth less than \$3.00, was finally recognized. This was accomplished by an official reduction in the nominal gold content of the pound. Prior to the Cripps announcement, each ounce of gold contained approximately 8.7 pounds sterling. After the announcement, each ounce of gold contained 12.5 pounds. Since each ounce, in turn, was worth \$35 at the American Treasury, this meant that the pound would henceforth have an American money equivalent of \$2.80. This was a deliberate devaluation of 30½ pct.

Why did this happen and what will be the effects?

This official action was merely a recognition by the British Government of a decline in the value of its money which had, in fact, long since taken place. It was the result of an internal depreciation which the state could no longer conceal or deny. Such internal depreciation in England, as in every other country where it has taken place, is the result of a great increase in the supply of money. It does not matter whether this increase takes place under the leadership of a John Law or a Stafford Cripps. When the supply of money becomes excessive its value declines in the same way that the value of wheat falls when there is too much of it.

England is the home of deficit financing. The great apostle of living-

on-debt and flourishing-on-red-ink, John Maynard Keynes, was a distinguished Englishman. He sold his seductive theories on both sides of the Atlantic. With more wealth, greater vitality and youth, we have not yet succumbed. In the case of England, economic senility and the poison of socialism have aggravated a degenerative process marked by definite symptoms.

(1) England has lost the patrimony which a century of vital Englishmen, after the Napoleonic Wars, had accumulated. At the outbreak of the First World War, England had overseas investments aggregating \$20 billion, on which she had annual income of \$1.5 billion. This income, plus the income from shipping, banking and insurance, paid for the difference between what she bought and sold and left a comfortable margin for reinvestment. The income has been lost because the capital yielding it has been consumed. The need for the income remains.

(2) The urge for paradise on earth, i.e., socialism, has removed from English life that discipline which forces men to do their best. The weak are protected. Their food and security no longer depend on their efforts. The able get no dividends for their foresight, energy and abstinence.

(3) The lack of competition and the passion for security and stability have caused English costs of production to move sharply upward. Prices have become so high that English goods find the going tough, not only in foreign markets but even at home. Before the war a standard council house in England cost the average worker the wages (after taxes) of 112 weeks. Now that same house takes the wages of 213 weeks. As long as a seller's market prevailed, these high costs did not bar full production. This has changed. Buyers can pick and choose and they go where they can buy cheap. This is not England.

(4) The English businessman has been practicing feather-bedding on a national scale for a half century. There are no antitrust laws in Great Britain. Industries are "organized," with markets allocated and prices

fixed to permit the least efficient to survive. Newcomers are discouraged. Technology has been dragging its feet. There are exceptions, of course. But note: The average shovel used in English strip mining is a ¾-yd shovel. In this country it is an 8-yd shovel.

(5) Currencywise, the English have been living in a world of make-believe since the end of the war. The International Monetary Fund, organized under English leadership and inspiration, set a scale of currency values which prevailed in July 1944 in the midst of war. For 5 years the English Government has been insisting that a \$2.80 pound was worth \$4.03. That government tried to maintain a rigged world market for sterling under which none of it could be traded at less than the official rate. However, there were constant leaks. The sterling area continued to lose its gold and dollar reserves in spite of lend-lease, a \$3750 million American and a \$1250 million Canadian "loan" in 1946, and Marshall Plan aid of \$1239 million in 1948 and \$962 million in 1949. It was the imminent exhaustion of sterling area reserves which caused the SOS from London in the early summer and brought Cripps and Bevin to Washington.

What will devaluation do?

It will reduce the cost of all exported English products in dollar areas. Devaluation will encourage British exports, will strengthen the competitive position of English products in world markets. It will discourage importation of American goods and weaken the competitive position of American exports in world markets.

Together with promised changes in customs administration by this country, it will open our domestic markets to British goods. This is a matter of degree. But it will be felt by all American producers who have so far been able to ignore English competition in this country.

In this matter Americans cannot have their cake and eat it too. We want the British to get off our backs. They want to get off. Devaluation will mean that British goods, to a degree, will replace American goods. If it does not do that, devaluation will have failed.

Devaluation Reactions

Continued from Page 77

is not yet ready to show its hand. Market conditions will still have to determine price policy.

There have been reports of some European cancellations of American orders. These are not widespread, and those which could be checked are not big. Reports from Britain, however, indicate that capital expansion and modernization plans might be due for a major overhauling. Among industrialists here the feeling predominates that much of the machinery and equipment which has been purchased in the U. S. cannot be supplied elsewhere.

Some firms selling British goods are now worried about inventories. Most of them already have their fall stocks on hand. As one pointed out, "What is to prevent someone else from buying the same products at a lower price and underselling us? We would have to meet their price and that would be disastrous." At least inventory problems are expected to be temporary.

British Cuts Vary

A misconception that developed close on the heels of the devaluation announcement was that the prices of all British goods would be slashed 30.5 pct. This is not true. Prices of some products will be reduced that much. Others probably won't be cut at all. Price cuts will depend largely on the amount of sales resistance on each product.

It is evident that some firms will lose sales to the British. Panaceas which will probably be offered include (1) Protection to various industries through higher tariffs, (2) return to the gold standard and (3) devaluation of U. S. currency.

Devaluation and counter-devaluation could develop into a vicious circle in a rat race for foreign trade. It happened that way in the thirties. It probably won't be repeated, in spite of pressure which is sure to be put on the government. Ernie and Sir Stafford must have gotten some kind of assurance when they were in Washington for talks before firing their economic bombshell.



STUDY PRESIDENT'S PROPOSAL: The President's message requesting a week's extension of the steel strike truce is being read by principals during the negotiations in Washington. They are: front, left to right, Philip Murray, Steelworkers Union president; Chief Conciliator Cyrus Ching; Admiral Ben Moreell, president of Jones & Laughlin. Rear, left to right, Charles M. Hook, board chairman of Armco Steel Corp.; and Clarence Randall, president of Inland Steel Co.

Harvester Workers Strike; Want to Pass on All Layoffs

Chicago—Six thousand workers at the crawler tractor plant of International Harvester Co. in Chicago are out of work as the result of a strike called on Sept. 20th by the Farm Equipment Workers Union. Trouble arose over the layoff of men in the assembly department when Harvester found it necessary to cut the production of crawler tractors due to a drastic fall off in sales.

The union has demanded that they be permitted to have a man sit in the employment office and pass on each and every layoff that management may find necessary to make. Harvester has refused to agree to this.

Boston Yard Lays Off Men

Boston—Dismissal notices to 1614 shipyard workers have been handed out at the Naval shipyard here. The cutback in personnel becomes effective Oct. 31 under the reduction announced in August by the Secretary of Defense.

Porcelain Enamel Men Stress Economy at 11th Annual Forum

Columbus, Ohio—A registration of 250 engineers and executives was recorded at the 11th Annual Porcelain Enamel Institute Forum, held recently at Ohio State University.

Greater economy in preparing raw materials by avoiding defects, and by the use of lower temperature firing of the glass-on-steel coating was the theme of the 14 papers presented. The subjects, however, ranged from these topics to a comparison of organic finishes with porcelain enamel, building good public relations, and psychology.

Foundry Sponsors Contest

Hillside, N. J.—To stimulate interest in existing applications for cast stainless steel, and to encourage further advances in industry's battle against corrosion, Cooper Alloy Foundry Co. is sponsoring an essay contest. Cash prizes will total over \$5000 for the best technical papers submitted.

INDUSTRIAL SHORTS

BEST WISHES—In commemoration of their 100th anniversary the AUSTIN-HASTINGS CO., INC., Cambridge, Mass. distributors of tubing, sheet metal, tool steel and machine tools, has published a book entitled "A Century of Progress."

MOST BEAUTIFUL—The annual Prize Bridge Awards of the AMERICAN INSTITUTE OF STEEL CONSTRUCTION for America's most beautiful steel bridges were presented to the Wautaga River Bridge on State Highway 67, Carter County, Tenn., and the Airport Apron Overpass over the Van Wyck Expressway at New York International Airport.

GETTING COAL—Announcement of the formation of a new department, the Coal Div., has been made by the PITTSBURGH MILL STEEL CO., INC., New York. The company has acquired exclusive sales franchises from coal producers in the Pittsburgh and West Virginia area.

LOWER COSTS—The formation of a new engineering and product design organization, CENTURY ENGINEERS, INC., at Burbank, Calif., has been announced. The president, Allen Baker, offers a unique plan of operation making possible substantially lowered engineering costs.

ANOTHER LINK—The opening of a district sales office in Duluth, Minn., has been announced by LINK-BELT CO. John E. Morrison, formerly district sales engineer at Chicago and Minneapolis, has been appointed district manager with Harold A. Iverson assisting.

MORE TOOLS—Acquisition of the Hisey-Wolf Machine Co., Cincinnati manufacturer of industrial grinding machines and buffing and polishing lathes, has been announced by the CINCINNATI ELECTRICAL TOOL CO.

EAST TO WEST—Appointment of three new sales representatives has been made by KIELEY & MUELLER, INC., North Bergen, N. J., makers of industrial control valves. W. J. Beckett Co., Los Angeles, will handle Southern California; Hugh Rodman, San Francisco, covers Northern California; and Farnes & Martig, Inc., Portland, covers the Northwest Pacific area.

ORDER OF MERIT—The Order of Merit, highest honor bestowed upon a WESTINGHOUSE ELECTRIC CORP. employee, was awarded to Ralph A. Hopkins, supervisor of central station and transportation sales for the Los Angeles area. He joined the company in 1907 as a student apprentice.

CHANGES HANDS—The Crocker-Wheeler Electric Mfg. Co., East Orange, N. J., has been acquired by the ELLIOTT CO., Jeannette, Pa., builders of power and process equipment.

CONTROLLERS—Morrow D. Wells, comptroller, Carnegie-Illinois Steel Corp., was elected president of the Pittsburgh Control of the CONTROLLERS INSTITUTE OF AMERICA. Frank V. Bigelow, treasurer and comptroller, Malleable Iron Fittings Co., was named president of the Bridgeport Control.

NEED O-RINGS?—The Parker Appliance Co., Cleveland, has announced the appointment of METAL GOODS CORP., Dallas, as distributor of their O-rings for static and dynamic seals for hydraulic and other fluid-handling systems.

INCREASING OUTPUT—Negotiations have been completed by the AMERICAN BLOWER CORP., Detroit, for a new manufacturing and assembly plant at San Leandro, Calif. The plant will be ready for operation some time in January 1950.

Left Wing UEW Defies CIO; Demands a Showdown on Policy

Cleveland — Alleged pro-Communist elements of the United Electrical Workers, third largest CIO union, routed right wing factions at the UEW convention here by re-electing left wing officers after pushing through a resolution demanding a showdown with the national CIO on policy.

Re-elected were Albert J. Fitzgerald, president since 1941; Julius Emspak, secretary-treasurer for the past 14 years, and James J. Matles, director of organization.

Re-election of the three was the UEW convention's reply to the CIO's demand last May that the union leadership conform to national CIO policy, resign, or face expulsion from membership in the CIO executive board at the organization's convention here next month. The national CIO was also backing right wing forces at the elections here.

Following a caucus, right wing forces announced they would remain in the CIO if the UEW drops out or is expelled.

Chicago Business Improves

Chicago — General business in the six-county Chicago industrial area in August improved over that of July. The Chicago Assn. of Commerce and Industry reported an upturn of 1.9 points in August, which is an increase of 1.4 pct over the previous month.

The upward movement was due to increased output of Chicago steel mills, more electric power production and higher freight carloadings.

Constructing Soybean Plant

Pittsburgh—Chemical Plants Div. of Blaw-Knox Construction Co. has begun construction of a large soybean processing plant for Cargill, Inc., one of the world's largest grain dealers and elevator operators. Completion is expected in 1950.

Malleable Iron Industry Shows Signs of Better Volume

Order volume up with belief that the 1949 bottom has been passed.

Cleveland—A 15 pct increase during the past month in volume of new orders for malleable iron castings was reported here by authoritative sources in the malleable iron industry.

A firm undertone and continuing demand during the fourth quarter was foreseen by spokesmen for major segments of the industry here. Business is still spotty but the inventory shake-out is over, according to company sources.

Major segments of the industry believe the 1949 bottom has been passed and that the industry will finish up the year not more than 20 pct off the 1948 total of 933,265 short tons.

Buyers are ordering very cautiously and operating on about a 30-day supply. Buyers are ordering smaller quantities but order volume is larger. Price is a big factor in sales, and malleable iron castings producers are quoting currently on a lot of business where it is difficult to tell if the customer is actively interested or simply shopping.

Watch Operating Costs

Most producers are operating currently at 4 days a week. Average backlog is about 2 months. An indirect benefit of this has been the focusing of malleable castings producers' attention on their own operating costs during the thin market of the past 5 months.

Demand from the automotive industry is expected to taper off during the fourth quarter, but the outlook for 1950 is good, with many segments of the industry anticipating a substantial upturn during either the second quarter or the second half.

Akron Plant Changes Hands

Akron, Ohio—Purchase of the plant, equipment and physical assets of Akron Bronze & Aluminum Co., by a group headed by W. H. Harris, vice-president and general

manager of Akron Gear & Engineering Co., was announced here. Akron Bronze, a large nonferrous foundry, produces copper, bronze and aluminum castings. The new owners have incorporated under the name of Akron Bronze & Aluminum, Inc. Mr. Harris has been elected president; J. M. W. Chamberlin, vice-president; W. T. Akers, Jr., secretary and treasurer, and Miss A. G. Kohl, assistant secretary and assistant treasurer.

Fore River Employment High

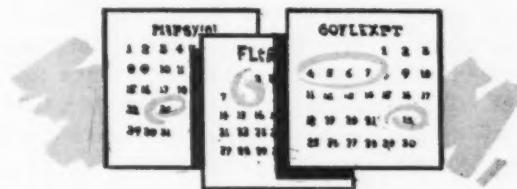
Quincy, Mass.—Employment at Fore River Shipyard of the Bethlehem Steel Co. is at a record peacetime level of 9500 workers. A company spokesman said he expects this to continue for at least a year.

The plant is busy with \$150 million in contracts including two destroyers and two ocean liners.

Pittsburgh Steel Man Picks Plant Location Near Boston

Boston—A representative of a Pittsburgh steel concern selected on Sept. 21 a site near the Lynn, Mass., General Electric plant as his first choice for a steel plant near Boston, John M. Bresnahan, assistant director of the Port of Boston, revealed. He would not further identify the man or the company.

The property, constituting reclaimed land near the General Edwards Bridge, is owned by the Lynn Port Authority. With the erection of a steel plant, 20,000 jobs would be created, Mr. Bresnahan said. If it is built at this location, legislation will be introduced giving the Boston Port Authority jurisdiction over the site so the state can cooperate with the mill-builders in any necessary harbor dredging, he added.



Dates to Remember

- | | |
|----------------|--|
| Oct. 3-4 | Steel Founders Society of America, fall meeting, White Sulphur Springs, W. Va. |
| Oct. 3-5 | American Coke & Coal Chemicals Institute, annual meeting, Skytop, Pa. |
| Oct. 3-6 | Assn. of Iron & Steel Engineers, annual convention, Pittsburgh. |
| Oct. 4-6 | Industrial Packaging & Materials Handling Exposition, annual convention, Detroit. |
| Oct. 10-14 | American Society for Testing Materials, West Coast meeting, San Francisco. |
| Oct. 11-14 | American Standards Assn., annual meeting, New York. |
| Oct. 12-15 | Electrochemical Society, semiannual meeting, Chicago. |
| Oct. 13-15 | Foundry Equipment Manufacturers Assn., annual meeting, White Sulphur Springs, W. Va. |
| Oct. 17-20 | American Gas Assn., annual convention, Chicago. |
| Oct. 17-21 | National Metal Congress, Cleveland. |
| Oct. 24-26 | American Gear Manufacturers Assn., annual meeting, Chicago. |
| Oct. 26-28 | National Metal Trades Assn., annual convention, Chicago. |
| Oct. 27-28 | Gray Iron Founders Society, annual meeting, Chicago. |
| Oct. 27-28 | Porcelain Enamel Institute, annual meeting, French Lick, Ind. |
| Oct. 27-29 | American Society of Tool Engineers, semiannual meeting, Montreal. |
| Oct. 30-Nov. 2 | National Tool & Die Manufacturers Assn., annual meeting, New York. |
| Oct. 31-Nov. 3 | American Institute of Steel Construction, annual convention, White Sulphur Springs, W. Va. |
| Nov. 10-11 | National Foundry Assn., annual meeting, New York. |

Lewis and Mine Operators Deadlocked in Negotiations

Steel producers have sufficient coal stocks for 45 to 55 days.

Pittsburgh — John L. Lewis' "no day week" in the nation's coal fields is having no immediate large-scale effect on steel mill operations, but steel producers are nevertheless concerned over the apparently hopeless deadlock between the United Mine Workers and coal mine operators.

When Mr. Lewis angrily stomped out of negotiating sessions with northern and western operators at White Sulphur Springs, W. Va., last week, he was emphatic in saying that producers had better come up with something better than their offer to renew existing contracts for 2 years.

The operators, on the other hand, were just as emphatic in their position that they cannot afford to increase costs and demanded that the UMW agree to elimination of two contract clauses that have been used by the union to justify work stoppages—the "memorial holiday" clause, and the "able and willing to work" clause.

Negotiating sessions were scheduled to resume this week between the union and the northern and western operators, and the southern operators, who meet at Bluefield, W. Va.

Situation Looks Futile

But George H. Love, president of Pittsburgh Consolidation Coal Co., and chief spokesman for the northern operators, said the situation looked so futile he preferred that negotiations be put off for a longer period.

The all-out strike began Sept. 19, after Mr. Lewis had denounced operators who had refused to contribute to the miners' welfare fund and thus, the union leader said, caused its present financial dilemma, one so serious that he suspended all payments as of Sept. 17. The operators deny this, arguing that the plan was ill-administered and so top-heavy that it would have collapsed anyway. In

Offers Plant for \$1

Auburn, N. Y.—International Harvester Co. last week offered to sell its Auburn plant to the city for \$1.

Ralph C. Archer of Chicago, a vice president, said the company hopes that some other factory will be attracted to Auburn and provide employment when Harvester closes its plant here in November, 1950. It now employs 1800 workers in the manufacture of farm machinery.

The company said the reasons for closing the plant are the high cost of transporting raw materials and the inadequacy of the buildings.

fact most operators are continuing their payments into the fund—20¢ for each ton of coal mined.

Coal stocks of major steel producers range from 45 to 55 days, so it is likely to be some time before their operations are affected.

President Truman has indicated he will not intervene in the coal crisis now since coal stocks above ground are such that the situation could not be classed as a national emergency.



"My husband works in a steel mill."

Malleable Iron Founders Show "This Moving World"

Cleveland—Malleable iron was the subject of a 16-mm motion picture in sound and color shown here and in New York last week before audiences of foundry officials and the working press by Malleable Founders' Society.

Title of the picture is "This Moving World." Its theme is the importance of malleable in today's era of motion and speed. In 30 minutes of running time the film shows how malleable castings are made and where they are used. Emphasis is given to the durability of parts made from malleable iron, their resistance to corrosion, impact and shock, and their ease of machining.

Production Economy Movies To Be Featured at Metal Show

Cleveland—More than 20 motion pictures, comprising a pictorial attack on production costs by means of methods, products, or equipment, will be shown by manufacturers, processors and service organizations at the 1949 Metal Exposition here, Oct. 17-21.

Films will be shown in the Economy Theatre in the Public Auditorium here, where the Metal Congress and Exposition will be held. Management of the Metal Show has arranged facilities for showing films which have a definite contribution to production savings, including licensed operators, projection equipment and other essential services.

A schedule of the showings will be published during the Exposition, which will be the largest ever held. About 350 exhibitors have already reserved more space, than at any previous Metal Congress and Exposition.

New York Employment Up

New York—For the first time in 6 months manufacturing employment in New York State increased in August, marking up a gain of 94,000 workers over July's total.



BEHIND THE SCENES: Members of the picketing committee of United Steelworkers Local 1397 were preparing signs last week at Homestead, Pa.

Steel Strike Answer Due This Week

Opinion is mixed on outcome of talks as negotiators meet for first time since July . . . Their job is to work out a face-saving compromise—By JOHN B. DELANEY

Pittsburgh—After 3 months of uncertainty, the question of whether there is to be a steel strike will be answered this week.

You can get just as many opinions as there are people in this steel center on that point—and newspaper people, not given to mind-reading, are just as confused as anybody.

Compromise Chances Increased

On the optimistic side is the fact that both the steel producers and the CIO United Steelworkers of America, in deference to a request by President Truman, went into collective bargaining sessions last weekend, after agreeing to an extension of the strike truce to Oct. 1.

To some observers this is a good sign. As Cyrus Ching, the President's mediator, points out, the longer you put off the showdown, the more chance you have that a face-saving compromise might be worked out.

The fact that the disputants

have agreed to sit down and talk to each other again for the first time since last July is in itself cause for optimism.

But the pessimists have this to say:

1. Neither side has publicly conceded an inch on its pension stand. The steel companies say they cannot accept the fact-finding board's recommendation that they give their workers 6¢ an hr for pensions, with the worker contributing nothing. Philip Murray, president of the USWA, said as late as last Thursday that he would continue to insist that the steel firms accept the fact-finding report as a basis for collective bargaining.

Workers Getting Restless

2. There are increasing signs of restiveness among the workers over the protracted delay in a solution to the dispute. Wildcat strikes hit two Pittsburgh district mills—Superior Steel Co., Carnegie, and Universal-Cyclops

Steel Co., Bridgeville—last week. A third strike over suspension of five riveters was pulled at the American Bridge Co. plant near here.

3. When he announced the wage policy committee's decision to extend the strike truce to 12:01 a.m., Oct. 1, Mr. Murray emphasized that it was the last extension the union would give. He agreed that perhaps the union membership is becoming restless.

Truman Action Still Possible

Of course, if the current negotiations are stalemated at mid-week, there always is a good chance that President Truman will again summon leaders of both sides to the White House for another try at averting a walkout. Mr. Truman already has pointed out that a steel strike, on top of the coal strike, would be just about the worst thing that could happen to the nation's economy.

The Inland Steel situation, where a local USWA union is bargaining on whether to continue the existing contributory pension plan, is being watched with interest. Should the 16,000-man local agree to continue the present Inland plan contrary to the wishes of international union officers, it would weaken the union's position. The fact that the local union agreed to bargain with Inland was in itself a defiance of international union policy.

Grace Gives Welfare Stand

New York—Bethlehem Steel Co. last week mailed a letter to all employees telling them its stand on insurance and pensions. Signed by chairman Eugene G. Grace, it said that the company now has a social security program on a sharing basis; is ready to bargain at once on social insurance, to study pensions as a preliminary to bargaining on them and believes employees should contribute to their own security.

He noted that on a sharing basis the company had so far contributed about \$50 million towards pensions and the employees about \$40 million for sickness and death benefits.

Tax Depreciation Policies Fail to Recognize High Costs

Need to recognize a change in price levels as a solution to write-offs.

Cleveland—Failure of present tax depreciation policies to recognize current high replacement costs is resulting in the dissipation of capital in most business today, H. T. McAnly, Ernst & Ernst partner, told the Ohio Society of Certified Public Accountants at their annual meeting here.

Business' need is for a practicable means of providing for depreciation on a current price level basis, such as an index of the purchasing power of the dollar, or the BLS wholesale commodity index.

"Recognition of the change in price levels is necessary as a realistic approach in reflecting corporate profits and taxable income if capital needed to continue operation is to be preserved," he declared.

This cannot be accomplished by acceleration of write-offs which are limited in total to original cost, however, equitable accelerated depreciation may be. The aim is not to recover original cost, but to recover funds which have the same purchasing power as those making up the original cost.

Pipeline Work Authorized

Washington—Federal Power Commission has granted Arkansas-Louisiana Gas Co. permission to construct 163 miles of 20-in. pipeline in Texas, Arkansas, and Louisiana. Estimated cost is \$7.7 million.

Transcontinental Gas Pipe Line Corp. has applied to the Commission for authorization to further expand its Texas-to-New York pipeline program (now under construction) in order to extend service to two additional companies—the South Jersey Gas Co., and Northeastern Gas Transmission Corp.

Under the proposed expansion, Transcontinental will build 10 new compressor stations and substitute 30-in. pipe for 26-in. pipe

on 362 miles of line now under construction. Cost of the proposed expansion would approximate \$50 million.

Inland, Union Will Bargain

Chicago—Local 1010 of the CIO union at Inland Steel Co. on Dec. 22 informed Inland officials they would meet and bargain on the pension and insurance issues which have stalemated the renewal of their contract with the company. Earlier in the day Inland had requested resumption of collective bargaining conferences to be held Sept. 23 at the Indiana Harbor works.

Machine Tools Authorized

Washington—Procurement of an additional \$3.1 million worth of machine tools under the Marshall Plan was authorized during the week ending Sept. 16. These are for delivery largely a year or more from now.

Included in the authorizations were \$2 million for Italy, \$1 million for Austria, and \$100,000 worth for French overseas possessions.

Midwest Gray Iron Founders Are Holding Gains in Business

Chicago—The foundry business which picked up in the middle of August in gray iron castings has continued to date. More and more of the gray iron foundries are going back to a 5-day week. Some of them are going on a 5-day week not because of the tonnage on order but because customers are pressing for immediate delivery. Some of the foundries say it is a tough struggle to stay on a 5-day week and is not justified on tonnage alone but to make deliveries they must be able to produce quickly.

The machine tool industry, a large factor in gray iron castings, has not picked up. The two big users, farm implements and automotive, continue to carry the bulk of the load.

Welgh Pig Iron Orders

So far, pig iron sellers report that the foundries' orders for pig iron in September are ahead of August but there is no way of telling yet how many of these orders were placed because of fear of a general steel strike. It is expected by the end of the month that foundries who ordered further ahead than normal will start cancelling. By that time it may be possible to determine how much of the pig iron tonnage was ordered as a strike hedge.

By the end of the month most foundries say they will have their normal 30-day inventory of pig iron on hand. If there are many cancellations by the first of October, some of the pig iron sellers believe that pig iron sales in October and November may suffer.

Strategic Materials Needed

Cleveland—Warning that lack of strategic materials would seriously limit this nation's production of jet engines if a war emergency developed, NACA engineers, at the annual inspection of NACA's flight propulsion laboratory here, added that columbium, tungsten, cobalt, chromium and nickel are considered critical in supply.



"You advertised for a welder?"

Briefs and Bulletins

vice versa—Motor freight carriers are asking for reductions in certain rates on certain products of the Interstate Commerce Commission. This comes as a pleasant surprise to some shippers. Rate cuts are asked on iron and steel from Detroit to Canton, Ohio, all types of sixth class freight from Davenport and other eastern Iowa points to Chicago, iron and steel containers from Detroit to Canton, Ohio, and iron and steel products between Pennsylvania points and Columbus, Ohio.

aluminum pipe—Alabama-Tennessee Natural Gas Co. has asked the Federal Power Commission for permission to substitute aluminum alloy pipe for steel pipe for transmission of natural gas. The 8-in. diam pipe would be used for a 9500 ft lateral line to serve the Renolds Alloy Co., Listerhill, Ala. The company said that, while total cost of construction will be increased by about \$6300, reduced future maintenance and longer service life are expected to materially offset this higher initial cost.

steel deliveries—Pressure by auto plants on steel suppliers has reached a point where some of the largest users are asking for what is in effect, "guaranteed delivery." In some cases where no guarantee was forthcoming the tonnage was placed elsewhere. This is not a general rule. Primarily it is the big companies that have turned on the heat. But all along the line efforts are being made to put steel deliveries on a tighter schedule.

more loco's—Class I railroads installed 1296 locomotives during the first 8 months of 1949, largest number for any similar period since 1923, the Assn. of American Railroads reports. For the same period, 66,564 new freight cars were put into service, about 2500 less than last year. Cars on order have been reduced to 28,731 as of Sept. 1.

meeting truck competition—The Chicago, Rock Island & Pacific R.R. has told the Interstate Commerce Commission that it wishes to cut rates on movements of iron and steel products to meet truck competition. The cuts would affect movements from the Chicago switching district.

manganese—With Russia obtaining \$500,000 in strategic oil tools from the U. S., the trade is speculating over the possibility that imports of manganese and chrome ore from Russia will be increased.

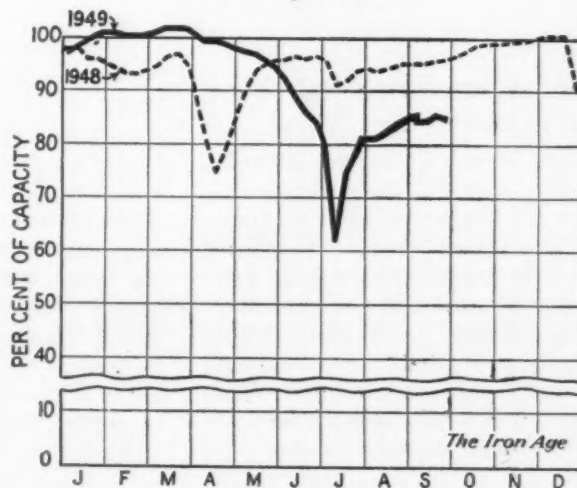
no rail strike—Threat of a strike against the Union Railroad Co., which serves U. S. Steel Corp. mills in the Pittsburgh district, was dissolved last weekend when the Brotherhood of Railroad Trainman accepted a mediation board report for settlement of a long-standing dispute.

dutch iron—With the expectation that devaluation of the Dutch guilder by 30 pct may permit a lower import price on Dutch pig iron, brokers have been canvassing the market here to find out the price at which orders can be taken.

materials tester—Architect-engineer services for the design of a materials testing reactor for the Atomic Energy Commission has been awarded to the Chemical Plants Div. of Blaw-Knox Co. The AEC's development program is expected to cost about \$20 million.

auto price cut—Plans to build almost twice as many cars from September through December than were produced during the same period last year and a price slash ranging from \$73 to \$140 were reported this week by Nash-Kelvinator Corp.

Steel Operations



District Operating Rates—Per Cent of Capacity

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	Cleveland	Buffalo	Wheeling	South	Detroit	West	Ohio River	St. Louis	East	Aggregate
Sept. 18	86.0*	94.0	85.0	85.0	99.0*	101.0	104.0	101.0	92.0*	85.0	84.0	80.0	91.5	86.0
Sept. 25	82.5	93.5	86.5	85.0	92.0	79.5	45.0	161.0	72.0	71.5	77.0	84.5	91.5	84.5

* Revised.

Ford Plans Temporary Shutdown of 10 Openhearth

Detroit—In order to complete several reconstruction projects, some of which were started last fall, Ford Motor Co. is temporarily closing down its 10 openhearth furnaces and its blooming mill for a period of 3 weeks. The Ford hot strip mill will also go down for about a week.

Ford spokesmen intimated that approximately 700 workers will be affected. About 200 are employed in the hot strip mill; the remainder are employed in the openhearth department and the blooming mill.

Among the projects to be completed during the layoff period are the installation of a new scale disposal system for the blooming mill and the hot strip mill, final installation of a new slab rehear furnace, installation of a new shear and a continuous scarfer at the blooming mill and general repairs for the blooming mill and the openhearth.

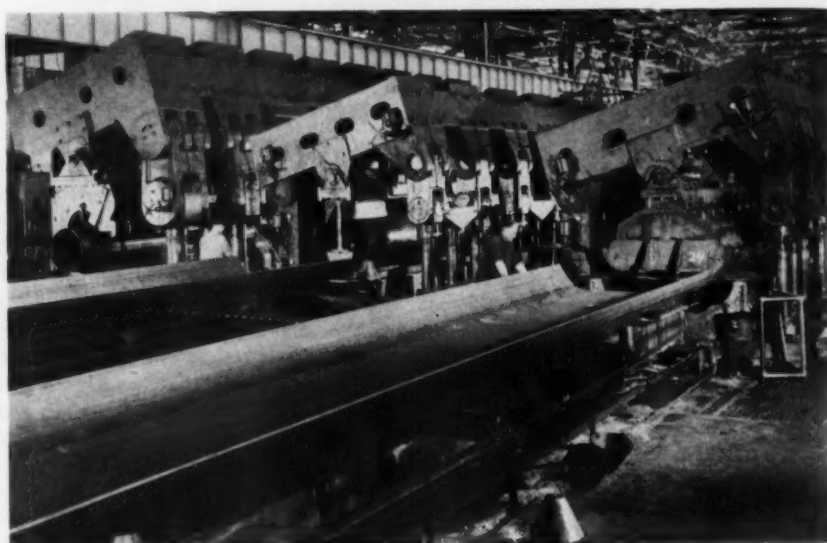
Ford maintenance men will perform the work during the shutdown period, it was explained. In addition, a number of qualified operating employees will be called on to help complete the work in the shortest possible time.

Coal Supplies Prove Adequate

Salt Lake City—Major coal consuming industries and retail yards in this area did not get caught short by the latest walkout from the coal mines. Geneva Steel Co. has a 90-day supply on hand and Utah Power & Light Co. has stockpiles sufficient for 60 days. Other industries reported good supplies on hand. Coal yards were reported generally full and able to meet all normal demands for 60 days.

Denver & Rio Grande Western R.R., which has a large coal haulage out of Carbon County, lopped off 250 men the first week of the strike and officials said the layoffs would rise unless the coal mines reopen soon. Union Pacific reduced employes slightly in Wyoming and Utah but there were no immediate cuts in Utah.

FORMING: Pipe bending machines at the Milwaukee plant of A. O. Smith. These hydraulic presses transform skelp into a roughly tubular section in three steps. From right to left they are U-ing, crimping and closing. Similar equipment is to be installed at Houston for the making of resistance welded line pipe and casing.



Will Build New Pipe Mill in Houston

A. O. Smith Corp. plans to have mill in operation by next summer . . . New mill will be the second largest in world . . . Sheffield furnishing plates—By D. I. Brown

Chicago—A. O. Smith Corp. will build its new pipe mill in Houston, Tex. Long under consideration (THE IRON AGE, Aug. 11, p. 111) the new mill will produce welded casing and line pipe from 8 $\frac{3}{8}$ in. to 30 in. in diam and larger. Capital stock of the new firm, A. O. Smith Corp. of Texas, will be equally held by Smith and Sheffield Steel Corp., a subsidiary of Armco Steel Corp., Middletown, Ohio.

The \$5 million pipe mill will have a capacity of 30,000 to 35,000 tons per month and will be the second largest welded pipe mill in the world. Smith's present mill in Milwaukee is the largest. Plates for the 40 ft long pipe will be furnished from Sheffield's steel plant which is adjacent to the site of the new mill. Rae F. Bell, chairman of the board, said the new plant "will effect tremendous saving in the cost of transporting steel and pipe to the Southwest." Eventually he believes pipe prices can thus be reduced.

Sheffield's present rolling facilities for plate will be expanded and modernized. They have purchased

a 120-in. single stand three-high plate mill located in Nova Scotia which will be installed at Houston to augment their present 112-in. single-stand hand mill. Pipe manufacturing methods and equipment will be identical to Smith's present facilities in Milwaukee (see photo). Mr. Bell told THE IRON AGE skelp from other steel centers will be used if necessary, but it is believed Sheffield can supply most of the steel requirements.

Good Competitive Position

With this mill Smith will be in an excellent competitive position and can supply line pipe at maximum economy. Most oil and gas lines originate in the Southwest and can use Houston-made pipe. Lines terminating in the North can use pipe made in Milwaukee. Export possibilities are also good, as the new mill is located on the ship canal.

It is believed that casing sold by Smith will eventually come from the Houston plant since this mill is much closer to the oil and gas fields. Chicago steel mills supply-

ing Milwaukee may not lose much line pipe plate tonnages, but eventually they will probably lose the tonnage used to make casing.

Construction will begin soon. The plant is expected to be in operation by next summer. Orders have already been accepted for 1950 delivery. Officers of the new company are: A. Von Wenning, chairman of the board; L. B. Smith, president; John M. Floyd, vice-president; D. F. McCarthy, vice-president and general manager; and M. J. Vollmer, secretary and treasurer. All are officials of A. O. Smith Corp. of Milwaukee.

Construction Steel Awards

Fabricated steel awards this week included the following:

- 9300 Tons, Cairo, Ill., railroad bridge for the Illinois Central R.R. to American Bridge Co., Pittsburgh.
- 800 Tons, Seabright, N. J., bridge, New Jersey Dept. of Highways, through Ole Hansen, Inc., Pleasantville, N. J., to American Bridge Co., Pittsburgh.
- 725 Tons, Edwardsport, Ind., plant to Vincennes Steel Co., Vincennes, Ind.
- 700 Tons, Philadelphia, plant for Supplee-Willis-Jones Milk Co., to McCloskey & Co., Philadelphia, general contractor.
- 380 Tons, Kane County, Wis., state highway bridge section F1-05-1-19, L. G. Arnold Inc., Eau Claire, Wis., low bidder.
- 265 Tons, Chicago, double deck highway R from Lake to Randolph St. to Herlihy Construction Co., Chicago.
- 260 Tons, Cook County, Ill., state highway bridge section 263-0910-1-15 to Bethlehem Steel Co., Bethlehem.
- 210 Tons, Philadelphia, health center for garment workers, to S. Yellin & Son, Philadelphia, general contractor.
- 200 Tons, Westboro, Mass., power plant through Foley Abrams Co., Brookline, Mass., to Groisser and Shlager Iron Works, Somerville, Mass.
- 160 Tons, Cook County, Ill., state highway bridge section 263-0910-1-15 to Bethlehem Steel Co., Bethlehem.
- 130 Tons, Glenside, Pa., cabinet factory for H. A. Prock, postponed indefinitely.
- 110 Tons, Jefferson County, Wis., state highway bridge section S0446-1, Peter Rasmussen of Oshkosh, Wis., low bidder.
- 110 Tons, Ruak County, Wis., state highway bridge section S0691-3 L. G. Arnold Inc., Eau Claire, Wis., low bidder.
- 100 Tons, Pueblo, Colo., 18th St. overpass for Santa Fe R.R. to American Bridge Co., Pittsburgh.
- 100 Tons, Philadelphia, crane runway for Midvale Co., to Bethlehem Steel Co., Bethlehem.

Fabricated steel inquiries this week included the following:

- 2800 Tons, Syracuse, N. Y., hospital for Veteran's Administration, due Oct. 25.
- 1650 Tons, Russell, Ky., Wolf Creek powder plant through U. S. Bureau of Reclamation.
- 1500 Tons, Chicago, University of Illinois hospital addition, bids close Oct. 12.
- 1160 Tons, Boise, Idaho, Lucky Peak tunnel.
- 200 Tons, Philadelphia, theater building with offices and stores, through Leonard Shaffer Co., Philadelphia, contractor, due Sept. 30.
- 150 Tons, Bristol, Pa., chemical plant addition for Rohm & Haas Co., Philadelphia.

Reinforcing bar awards this week included the following:

- 585 Tons, Smith River, Va., Philpott Dam, to Virginia Steel Co., Richmond, Va.
- 220 Tons, Chicago, main drain Congress St., to U. S. Steel Supply Co., Chicago.
- 210 Tons, Charleston, W. Va., Memorial Hospital, to West Virginia Steel and Mfg. Co., Huntington, W. Va.
- 100 Tons, Lansing, Mich., St. Ann Parish, to Dean Steel Co., Chicago.
- 100 Tons, Haverhill and Groveland, Mass., bridge through T. Stuart and Sons, Watertown, Mass., to Bethlehem Steel Co., Bethlehem.

Reinforcing bar inquiries this week included the following:

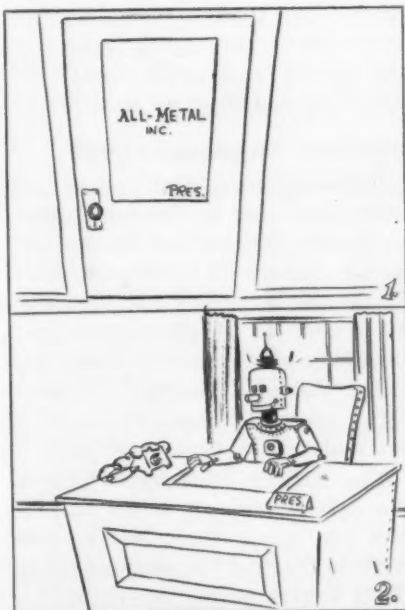
- 700 Tons, Chicago, Veterans Hospital.
- 230 Tons, Rankin, Pa., state highway bridge No. 8.
- 210 Tons, Bedford, Pa., Memorial Hospital.
- 150 Tons, Cook County, Ill., Skokie River pumping station.
- 115 Tons, La Grange, Ill., physical education building.
- 110 Tons, Los Angeles, bridge over San Gabriel River, Firestone Blvd., California Div. of Highways, Los Angeles, bids to Oct. 20.
- 100 Tons, Decatur, Ill., building for Staley Mfg. Co., Decatur, Ill.

Steel piling awards this week included the following:

- 300 Tons, Groveland and Haverhill, Mass., bridge through T. Stuart and Sons, Watertown, Mass., to Bethlehem Steel Co., Bethlehem.

Construction Employment Up

Washington — Contract construction employment increased by 54,000 to a total of 2,333,000 in mid-August, not far short of the postwar peak set last year, according to the Bureau of Labor Statistics. At the same time, in a report on the employment outlook, the BLS said that the future looks good.



Will Build Industrial Furnaces

Pittsburgh — Charles E. Stone, president of Chemsteel Construction Co., Inc., reports incorporation of an associated company,



Arthur M. Krieger

Affiliated Furnace and Engineering, Inc., which will specialize in the design, construction and maintenance of industrial furnaces. Offices of the new company are at 5428 Walnut St., Pittsburgh, to which address Chemsteel Construction Co. moved last December from its former headquarters at Mertztown, Pa.

Arthur M. Krieger has been appointed president and general manager of the new firm. Clarence B. Avery was named vice president, engineering; Merrill A. Stewart, vice president, construction, and Mr. Stone, secretary and treasurer.

Before taking his new position, Mr. Krieger was manager of the Estate Heatrola Div. of Noma Electric Corp., Hamilton, O., and earlier was associated with Universal Atlas Cement and Carnegie-Illinois Steel Corp. in the construction, maintenance and operating divisions.

Construction Awards Rise

New York — Contracts awarded for building and engineering works by private owners in the 37 states east of the Rocky Mountains turned upward last month to reverse the downward trend for earlier months of the year, according to F. W. Dodge Corp.

Investment commitments by private interests for building and engineering projects in August amounted to \$589,339,000 in the 37 states to show a gain of 11 pct over July and 2 pct over August a year ago. The principal private investment increases were in residential and engineering projects.

Nonferrous METALS OUTLOOK

Market Activities

New British metals prices force fabricators to export to dollar countries . . . Canadian aluminum price held . . .

Tin set at 95¢ . . Lead drops 3/8¢.



by

John Anthony

New York—A pattern has begun to appear in the effects of devaluation on the metal markets. The British Ministry of Supply has announced new sterling prices to domestic consumers for copper, lead, zinc and aluminum. The new prices represent a considerable advance in the cost of metals to British consumers, due to the effects of devaluation. In copper, lead and zinc, the dollar equivalent is very close to the world market prices. The dollar equivalent of the aluminum price has been set several cents per lb below the prices of United States producers.

Devaluation Forces Exports

It is clear that the net effect of these prices will be to force British metal fabricators to raise the prices of their finished products high enough to restrict sales to the domestic market and to the soft currency foreign markets. At these prices, British metal fabricators will have to export their production to the dollar countries in order to stay in business.

British metal prices to consumers are as follows:

	New Price		Old Price	
	sterling	dollar	sterling	dollar
Copper	£140	17.50¢	£107 10s	19.35¢
Lead	£122	15.25¢	£ 87 5s	15.71¢
Zinc	£ 87 10s	10.937¢	£ 63 10s	11.43¢
Aluminum	£112	14.00¢	£ 93	16.74¢

NONFERROUS METALS PRICES

	Sept. 21	Sept. 22	Sept. 23	Sept. 24	Sept. 26	Sept. 27
Copper, electro, Conn. . . .	17.625	17.625	17.625	17.625	17.625	17.625
Copper, Lake, Conn.	17.75	17.75	17.75	17.75	17.75	17.75
Tin, Grade A, New York . . .	\$1.03	\$1.03	\$1.03	\$1.03	95.00	95.00
Zinc, East St. Louis	10.00	10.00	10.00	10.00	10.00	10.00
Lead, St. Louis	{ 14.925- 14.975	{ 14.925- 14.975	{ 14.925- 14.975	{ 14.925- 14.975	14.60	14.60

Note: Quotations are going prices.

In the case of aluminum, the 14¢ price is equalized with the prices of domestic production when the U. S. duty of 2¢ on pig and ingots, and 3¢ on sheet, rod and simple extrusions is added.

Canadian Aluminum 14.10¢

Canadian aluminum ingots are being sold now at the same price as before devaluation of the Canadian dollar—15.50¢ per lb. This brings the price in U. S. currency to 14.10¢. It is significant that Canadian aluminum has been sold to the United Kingdom for a good many years at 14¢ per lb, at present under ECA authorizations.

The British Ministry, which is the sole buyer and seller of Empire tin output from Malaya and Nigeria, has set the price of tin to U. S. buyers at 95¢ per lb, c. i. f.

U. S. ports, a reduction of 8¢. The price to UK consumers will be the same. Other foreign consumers will pay the New York equivalent. The Ministry has announced that it will discontinue bulk buying of tin and will reopen the London Metal exchange for dealings in tin.

RFC withdrew the \$1.03 price for a few days, during which there will be no spot tin available to the market.

Lead Down 3/8¢

The price of lead was reduced on Sept. 26 by 3/8¢ bringing the New York price to 14.75¢, St. Louis to 14.60¢. The weakness in the market developed from a decline in sales and the recent heavy imports of foreign lead.

Nonferrous Prices

Primary Metals

(Cents per lb, unless otherwise noted)

Aluminum, 99+%, 10,000 lb, freight allowed	17.00
Aluminum pig	16.00
Antimony, American, Laredo, Tex.	38.50
Beryllium copper, 3.75-4.25% Be	
dollars per lb contained Be	\$24.50
Beryllium aluminum 5% Be, dollars per lb contained Be	\$52.00
Bismuth, ton lots	\$2.00
Cadmium, del'd	\$2.00
Cobalt, 97-99% (per lb)	\$1.80 to \$1.87
Copper, electro, Conn. Valley	17.625
Copper, lake, Conn. Valley	17.75
Gold, U. S. Treas., dollars per oz.	\$35.00
Indium, 99.8%, dollars per troy oz.	\$2.25
Iridium, dollars per troy oz.	\$100 to \$110
Lead, St. Louis	14.60
Lead, New York	14.75
Magnesium, 99.8+%, f.o.b. Freeport, Tex.	20.50
Magnesium, sticks, carlots	34.50
Mercury, dollars per 76-lb flask	
f.o.b. New York	\$72 to \$75
Nickel, electro, f.o.b. New York	42.93
Palladium, dollars per troy oz.	\$24.00
Platinum, dollars per troy oz.	\$69 to \$72
Silver, New York, cents per oz.	73.25
Tin, New York	95.00
Zinc, East St. Louis	10.00
Zinc, New York	10.72
Zirconium copper, 10-12 pct Zr, per lb contained Zr	\$12.00

Remelted Metals

Brass Ingot

(Published prices, cents per lb delivered, carloads)

85-5-5-5 ingot		
No. 115	15.00*	16.50
No. 120	14.50*	16.00
No. 123	14.00*	15.50
80-10-10 ingot		
No. 305		21.00
No. 315		18.00
88-10-2 ingot		
No. 210		27.50
No. 215		24.50
No. 245	17.50*	19.75
Yellow ingot		
No. 405	12.75*	14.25
Manganese bronze		
No. 421		19.00

* F.o.b. Philadelphia.

Aluminum Ingot

(Cents per lb, lots of 30,000 lb)

95-5 aluminum-silicon alloys		
0.30 copper, max.	18.75-19.00	
0.60 copper, max.	18.50-18.75	
Piston alloys (No. 122 type)	16.75	
No. 12 alum. (No. 2 grade)	15.50-16.00	
108 alloy	16.25-16.75	
195 alloy	17.25-17.50	
13 alloy	18.50-18.75	
AXS-679	16.50-16.75	
5% Ti, Aluminum, f.o.b., Edgystone, Pa.		31.00
Low copper		25.00
2% copper		25.00

Steel deoxidizing aluminum, notch-bar, granulated or shot

Grade 1-95-97 1/2%	17.50-18.00
Grade 2-92-95%	16.50-17.00
Grade 3-90-92%	15.50-16.00
Grade 4-85-90%	14.50-15.00

Electroplating Supplies

Anodes
(Cents per lb, freight allowed, in 500 lb lots)

Copper	
Cast, oval, 15 in. or longer	34%
Electrodeposited	28%
Roller, oval, straight, delivered	31.46
Ball anodes	32%
Brass, 80-20	
Cast, oval, 15 in. or longer	30%
Zinc, oval, 99.88%, f.o.b. Detroit	17 1/2
Ball anodes	16 1/2
Nickel 99 pct plus	
Cast	59.00
Roller, depolarized	60.00
Cadmium	\$2.15
Silver 999 fine, roller, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn.	79
Chemicals	
(Cents per lb, f.o.b. shipping point)	
Copper cyanide, 100 lb drum	45.00
Copper sulfate, 99.5 crystals, bbl.	11.10
Nickel salts, single or double, 4-100 lb bags, frt allowed	18.00
Nickel chloride, 300 lb bbl.	24.50
Silver cyanide, 100 oz lots, per oz.	59
Sodium cyanide, 96 pct domestic 200 lb drums	19.25
Zinc sulfate, crystals, 22.5 pct, bags	6.75
Zinc sulfate, 25 pct, flakes, bbl.	7.75

Mill Products

Aluminum

(Base prices, cents per pound, base 30,000 lb, f.o.b. shipping point, freight allowed)

Flat Sheet: 0.188 in., 2S, 3S, 26.9¢; 4S, 61S-O, 28.8¢; 62S, 30.9¢; 24S-O, 24S-OAL, 29.8¢; 75S-O, 75S-OAL, 36.3¢; 0.081 in., 2S, 3S, 27.9¢; 4S, 61S-O, 30.2¢; 62S, 32.3¢; 24S-O, 24S-OAL, 30.9¢; 75S-O, 75S-OAL, 38¢; 0.032 in., 2S, 3S, 29.5¢; 4S, 61S-O, 33.5¢; 62S, 36.2¢; 24S-O, 24S-OAL, 37.9¢; 75S-O, 75S-OAL, 47.6¢.
Plate: 1/4 in. and heavier: 2S, 3S, F, 23.8¢; 4S-F, 26¢; 62S-F, 27.1¢; 61S-O, 26.6¢; 24S-F, 24S-FAL, 27.1¢; 75S-F, 75S-FAL, 33.9¢.
Extruded Solid Shapes: Shape factors 1 to 4, 33.6¢ to 64¢; 11 to 13, 84.6¢ to 76¢; 23 to 25, 36.7¢ to \$1.05; 35 to 37, 44¢ to \$1.53; 47 to 49, 63.5¢ to \$2.20.
Rod, Rolled: 1.064 to 4.5 in., 2S-F, 3S-F, 34¢ to 30.5¢; Cold-finished, 0.375 to 3.5 in., 2S, 3S, 36.5¢ to 32¢.
Screw Machine Stock: Drawn, 1/4 to 1 1/2 in., 11S-T3, R317-T4, 49¢ to 88¢; cold-finished, 1/4 to 1 1/2 in., 11S-T3, 37.5¢ to 35.5¢; 1/2 to 2 in., R317-T4, 37.5¢ to 34.5¢; rolled, 1 1/2 to 3 in., 11S-T3, 35.5¢ to 32.5¢; 2 1/2 to 3 1/2 in., R317-T4, 33.5¢ to 32.5¢. Base 5000 lb.
Drawn Wire: Coiled, 0.051 to 0.374 in.: 2S, 36¢ to 26.5¢; 52S, 44¢ to 32¢; 56S, 47¢ to 38.5¢; 17S-T4, 50¢ to 34.5¢; 61S-T4, 44.5¢ to 34¢; 75S-T6, 76¢ to 55¢.

Magnesium

(Cents per lb, f.o.b. mill, freight allowed Base quantity 30,000 lb)

Sheets and Plate: Ma, FSA, 1/4 in., 54¢-56¢; 0.188 in., 56¢-58¢; B & S gage 8, 58¢-60¢; 10, 59¢-61¢; 12, 63¢-65¢; 14, 69¢-74¢; 16, 76¢-81¢; 18, 84¢-89¢; 20, 96¢-101¢; 22, \$1.22-\$1.31; 24, \$1.62-\$1.75. Specification grade higher.
Extruded Round Rod: M, diam in., 1/4 to 0.311, 58¢; 1/2 to 3/4, 46¢; 1 1/4 to 1.749, 48¢; 2 1/4 to 5, 41¢. Other alloys higher.
Extruded Square, Hex. Bar: M, size across flats, in., 1/4 to 0.311, 61¢; 1/2 to 0.749, 48¢; 1 1/4 to 1.749, 44¢; 2 1/4 to 4, 42¢. Other alloys higher.
Extruded Solid Shapes, Rectangle: M, in weight per ft, for perimeters of less than size indicated, 0.10 to 0.11 lb per ft, per. up to 3.5 in., 55¢; 0.22 to 0.25 lb per ft, per. up to 5.9 in., 51¢; 0.50 to 0.59 lb per ft, per. up to 8.6 in., 47¢; 1.3 to 2.59 lb per ft, per. up to 19.5 in., 44¢; 4 to 6 lb per ft, per. up to 28 in., 43¢. Other alloys higher.
Extruded Round Tubing: M, wall thickness, outside diam, in., 0.049 to 0.057, 1/4 to 5/16, \$1.14; 5/16 to 3/8, \$1.02; 3/8 to 1/2, 76¢; 1 to 2 in., 65¢; 0.065 to 0.082, 3/4 to 7/16, 85¢; 3/4 to 1, 62¢; 1 to 2 in., 57¢; 0.165 to 0.219, 5/8 to 3/4, 54.5¢; 1 to 2 in., 53¢; 3 to 4 in., 49¢. Other alloys higher.

Nickel and Monel

(Base prices, cents per lb, f.o.b. mill)

	Nickel	Monel
Sheets, cold rolled	60	47
Strip, cold-rolled	66	50
Rods and bars	56	45
Angles, hot-rolled	56	45
Plates	53	46
Seamless tubes	59	50
Shot and blocks		40

Copper, Brass, Bronze

(Cents per pound, freight prepaid on 200 lb)

	Sheets	Rods	Extruded Shapes
Copper	31.30		30.90
Copper, hot-rolled		27.15	
Copper, drawn		28.40	
Low brass	29.47	29.16	32.33*
Yellow brass	28.19	27.88	31.20*
Red brass	29.89	29.58	32.80*
Naval brass	33.13	27.19	28.44
Leaded brass		22.76	26.85
Commercial bronze	30.84	30.53	33.50*
Manganese bronze	36.63	30.54	32.04
Phosphor bronze	50.47	50.72	
Muntz metal	31.15	26.71	27.96
Everdur, Hercules, Olym-pic, etc	36.19	35.14	
Nickel silver, 10 pct	39.12	41.41	41.44
Architectural bronze			36.85

* Seamless tubing.

Scrap Metals

Brass Mill Scrap

(Cents per pound; add 1/4¢ per lb for shipments of 20,000 to 40,000 lb; add 1¢ for more than 40,000 lb)

	Heavy	Turn-ings
Copper	14 1/2	13 1/2
Yellow brass	13	11
Red brass	13 1/2	12 1/2
Commercial bronze	13 1/2	12 1/2
Manganese bronze	11 1/2	10 1/2
Leaded brass rod ends	11 1/2	

Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	14.00
No. 2 copper wire	13.00
Light copper	12.00
Refinery brass	12.00*
Radiators	9.00

* Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to producer)

No. 1 copper wire	14.00
No. 2 copper wire	13.00
Light copper	12.00
No. 1 composition	10.50
No. 1 comp. turnings	10.00
Roller brass	9.25
Brass pipe	10.00
Radiators	8.75- 9.00
Heavy yellow brass	8.00- 8.25

Aluminum

Mixed old cast	10.50-11.00
Mixed old clips	10.50-11.00
Mixed turnings, dry	8.00
Pots and pans	10.50-11.00
Low copper	11.50

Dealers' Scrap

(Dealers' buying prices, f.o.b. New York in cents per pound)

Copper and Brass

No. 1 heavy copper and wire	12 1/2 - 12 1/2
No. 2 heavy copper and wire	11 1/2 - 11 1/2
Light copper	10 1/2 - 10 1/2
Auto radiators (unsweated)	7 1/2 - 7 1/2
No. 1 composition	8 1/2 - 9
No. 1 composition turnings	8 1/2 - 8 1/2
Clean red car boxes	7 1/2 - 7 1/2
Cocks and faucets	7 1/2 - 7 1/2
Mixed heavy yellow brass	6 1/2 - 6 1/2
Old roller brass	7 3/4 - 8
Brass pipe	8 1/2 - 8 1/2
New soft brass clippings	10 - 10 1/2
Brass rod ends	7 1/2 - 8
No. 1 brass rod turnings	7 1/2 - 7 1/2

Aluminum

Alum. pistons and struts	5 - 5 1/2
Aluminum crankcases	7 - 8
25 aluminum clippings	10 1/2 - 11
Old sheet and utensils	7 - 8
Borings and turnings	7 - 8
Misc. cast aluminum	7 - 8
Dural clips (24S)	7 - 8

Zinc

New zinc clippings	6 - 6 1/2
Old zinc	4 - 4 1/2
Zinc routings	2 1/2 - 3 1/2
Old die cast scrap	3 - 3 1/2

Nickel and Monel

Pure nickel clippings	16 - 17
Clean nickel turnings	14 - 15
Nickel anodes	16 - 17
Nickel rod ends	16 - 17
New Monel clippings	10 1/2 - 11 1/2
Clean Monel turnings	6 - 7
Old sheet Monel	8 - 9
Old Monel castings	7 - 8
Inconel clippings	10 - 11
Nickel silver clippings, mixed	6 - 7
Nickel silver turnings, mixed	5 1/2 - 6

Lead

Soft scrap, lead	10 1/2 - 11
Battery plates (dry)	5 - 5 1/2

Magnesium

Segregated solids	9 - 10
Castings	5 1/2 - 6 1/2

Miscellaneous

Block tin	70 - 72
No. 1 pewter	43 - 45
No. 1 auto babbitt	38 - 40
Mixed common babbitt	11 1/2 - 12
Solder joints	10 1/2 - 11
Siphon tops	45 - 47
Small foundry type	12 - 13 1/2
Monotype	12 - 12 1/2
Lino. and stereotype	11 1/2 - 12
Electrotype	10 1/2 - 11
New type shell cuttings	10 1/2 - 10 1/2
Hand picked type shells	4
Lino. and stereo. dross	5 1/2 - 5 1/2
Electro. dross	4 1/2 - 4 1/2

Comparison of Prices

Steel prices on this page are the average of various l.e.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Flat-Rolled Steel:	Sept. 27, 1949	Sept. 20, 1949	Aug. 30, 1949	Sept. 28, 1948
(cents per pound)				
Hot-rolled sheets	3.25	3.25	3.25	3.26
Cold-rolled sheets	4.00	4.00	4.00	4.00
Galvanized sheets (10 ga)	4.40	4.40	4.40	4.40
Hot-rolled strip	3.25	3.25	3.25	3.265
Cold-rolled strip	4.038	4.038	4.038	4.063
Plates	3.40	3.40	3.40	3.42
Plates wrought iron	7.85	7.85	7.85	7.85
Stains C-R strip (No. 302)	33.00	33.00	33.00	33.00

Tin and Terneplate:

(dollars per base box)				
Tinplate (1.50 lb) cokes	\$7.75	\$7.75	\$7.75	\$6.80
Tinplate, electro (0.50 lb)	6.70	6.70	6.70	6.00
Special coated mfg. ternes	6.65	6.65	6.65	5.90

Bars and Shapes:

(cents per pound)				
Merchant bars	3.35	3.35	3.35	3.37
Cold-finished bars	3.995	3.995	3.995	3.995
Alloy bars	3.75	3.75	3.75	3.75
Structural shapes	3.25	3.25	3.25	3.25
Stainless bars (No. 302)	28.50	28.50	28.50	28.50
Wrought iron bars	9.50	9.50	9.50	9.50

Wire:

(cents per pound)				
Bright wire	4.15	4.15	4.15	4.256

Rails:

(dollars per 100 lb)				
Heavy rails	\$3.20	\$3.20	\$3.20	\$3.20
Light rails	3.55	3.55	3.55	3.55

Semifinished Steel:

(dollars per net ton)				
Rerolling billets	\$52.00	\$52.00	\$52.00	\$52.00
Slabs, rerolling	52.00	52.00	52.00	52.00
Forging billets	61.00	61.00	61.00	61.00
Alloy blooms, billets, slabs	63.00	63.00	63.00	63.00

Wire rod and Skelp:

(cents per pound)				
Wire rods	3.40	3.40	3.40	3.619
Skelp	3.25	3.25	3.25	3.25

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

Pig Iron:	Sept. 27, 1949	Sept. 20, 1949	Aug. 30, 1949	Sept. 28, 1948
(per gross ton)				
No. 2, foundry, Phila.	\$50.42	\$50.42	\$50.56*	\$51.56
No. 2, Valley furnace	46.50	46.50	46.50	43.50
No. 2, Southern Cin'ti.	46.08	46.08	45.47*	49.47
No. 2, Birmingham	39.38	39.38	39.38	43.38
No. 2, foundry, Chicago†	46.50	46.50	46.50	43.00
Basic del'd Philadelphia	49.92	49.92	49.74*	50.76
Basic, Valley furnace	46.00	46.00	46.00	43.00
Malleable, Chicago†	46.50	46.50	46.50	43.50
Malleable, Valley	46.50	46.50	46.50	43.50
Charcoal, Chicago	68.56	68.56	73.78	69.55
Ferromanganese†	173.40	173.40	173.40	145.00

†The switching charge for delivery to foundries in the Chicago district is \$1 per ton.

‡Average of U. S. prices quoted on Ferroalloy page.

*Does not include interim increase on total freight charges, effective Jan. 11, 1949.

Scrap:

(per gross ton)				
Heavy melt'g steel, P'gh.	\$29.75	\$29.75	\$24.25	\$42.75
Heavy melt'g steel, Phila.	25.50	24.00	21.25	45.00
Heavy melt'g steel, Ch'go	28.50	28.50	24.50	41.75
No. 1 hy. comp. sh't Det.	23.50	23.50	21.50	38.00
Low phos. Young'n	31.75	31.75*	27.25	47.75
No. 1, cast, Pittsburgh	39.50	39.50	36.50	70.00
No. 1, cast, Philadelphia	39.00	39.00	32.50	65.50
No. 1, cast, Chicago	42.50	42.50	41.50	71.00

Coke: Connellsville:

(per net ton at oven)				
Furnace coke, prompt	\$14.25	\$14.25	\$14.25	\$15.00
Foundry coke, prompt	15.75	15.75	15.75	17.00

Nonferrous Metals:

(cents per pound to large buyers)				
Copper, electro, Conn.	17.625	17.625	17.625	23.50
Copper, Lake Conn.	17.75	17.75	17.75	23.625
Tin, Straits, New York	95.00	\$1.03	\$1.03	\$1.03
Zinc, East St. Louis	10.00	10.00	10.00	15.00
Lead, St. Louis	14.60	14.925	14.925	19.30
Aluminum, virgin	17.00	17.00	17.00	16.00
Nickel electrolytic	42.93	42.93	42.93	42.90
Magnesium, ingot	20.50	20.50	20.50	20.50
Antimony, Laredo, Tex.	38.50	38.50	38.50	35.00

Starting with the issue of May 12, 1949, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 139 of May 12, 1949, issue.)

Composite Prices

Finished Steel Base Price

Sept. 27, 1949	3.705¢ per lb.
One week ago	3.705¢ per lb.
One month ago	3.705¢ per lb.
One year ago	3.720¢ per lb.

	High	Low
1949....	3.720¢ Jan. 1	3.705¢ May 3
1948....	3.721¢ July 27	3.193¢ Jan. 1
1947....	3.193¢ July 29	2.848¢ Jan. 1
1946....	2.848¢ Dec. 31	2.464¢ Jan. 1
1945....	2.464¢ May 29	2.396¢ Jan. 1
1944....	2.396¢	2.396¢
1943....	2.396¢	2.396¢
1942....	2.396¢	2.396¢
1941....	2.396¢	2.396¢
1940....	2.30467¢ Jan. 2	2.24107¢ Apr. 16
1939....	2.35367¢ Jan. 3	2.26689¢ May 16
1938....	2.58414¢ Jan. 4	2.27207¢ Oct. 18
1937....	2.58414¢ Mar. 9	2.32263¢ Jan. 4
1936....	2.32263¢ Dec. 28	2.05200¢ Mar. 10
1935....	2.07642¢ Oct. 1	2.06492¢ Jan. 8
1934....	2.15367¢ Apr. 24	1.95757¢ Jan. 2
1933....	1.95578¢ Oct. 3	1.75836¢ May 2
1932....	1.89196¢ July 5	1.83901¢ Mar. 1
1931....	1.99626¢ Jan. 13	1.86586¢ Dec. 29
1929....	2.31773¢ May 28	2.26498¢ Oct. 29

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strip, representing major portion of finished steel shipments. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

Pig Iron

....\$45.88 per gross ton....
.... 45.88 per gross ton....
.... 45.91 per gross ton....
.... 45.07 per gross ton....

	High	Low
46.82 Jan. 4	46.82	45.88 Sept. 6
46.91 Oct. 12	46.91	39.58 Jan. 6
37.98 Dec. 30	37.98	30.14 Jan. 7
30.14 Dec. 10	30.14	25.37 Jan. 1
25.37 Oct. 23	25.37	23.61 Jan. 2
	\$23.61	\$23.61
	23.61	23.61
	23.61	23.61
\$23.61 Mar. 20	\$23.61	\$23.45 Jan. 2
23.45 Dec. 23	23.45	22.61 Jan. 2
22.61 Sept. 19	22.61	20.61 Sept. 12
23.25 June 21	23.25	19.61 July 6
23.25 Mar. 9	23.25	20.25 Feb. 16
19.74 Nov. 24	19.74	18.73 Aug. 11
18.84 Nov. 5	18.84	17.83 May 14
17.90 May 1	17.90	16.90 Jan. 27
16.90 Dec. 5	16.90	13.56 Jan. 3
14.81 Jan. 5	14.81	13.56 Dec. 6
15.90 Jan. 6	15.90	14.79 Dec. 15
18.71 May 14	18.71	18.21 Dec. 17

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Scrap Steel

....\$27.92 per gross ton....
.... 27.42 per gross ton....
.... 23.33 per gross ton....
.... 43.16 per gross ton....

	High	Low
\$43.00 Jan. 1	\$43.00	\$19.33 June 23
43.16 July 27	43.16	39.75 Mar. 9
42.58 Oct. 28	42.58	29.50 May 20
31.17 Dec. 24	31.17	19.17 Jan. 1
19.17 Jan. 2	19.17	18.92 May 22
19.17 Jan. 11	19.17	15.76 Oct. 24
	\$19.17	\$19.17
	19.17	19.17
\$22.00 Jan. 7	\$22.00	\$19.17 Apr. 10
21.83 Dec. 30	21.83	16.04 Apr. 9
22.50 Oct. 3	22.50	14.08 May 16
15.00 Nov. 22	15.00	11.00 June 7
21.92 Mar. 30	21.92	12.67 June 9
17.75 Dec. 21	17.75	12.67 June 9
13.42 Dec. 10	13.42	10.33 Apr. 29
13.00 Mar. 13	13.00	9.50 Sept. 25
12.25 Aug. 8	12.25	6.75 Jan. 3
8.50 Jan. 12	8.50	6.43 July 5
11.33 Jan. 6	11.33	8.50 Dec. 29
17.58 Jan. 29	17.58	14.08 Dec. 8

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

MARKETS-PRICES-TRENDS



SCRAP Iron & Steel

Market Advance Halted By Steel-Labor Dispute

The uncertainty pending the outcome of the steel-labor dispute acted as a brake on prices and market transactions. The mills were still on the sidelines awaiting settlement of the pension issue. The coal strike has not affected the scrap market, but if prolonged it would tend to increase the demand for scrap. Foundries were still buying considerable quantities of material and the demand shows no signs of dropping off. The only advances of No. 1 steel this week was at St. Louis where the top quotation was up \$3.00; in Philadelphia it was up \$2.00; and in Buffalo it was up 50¢. THE IRON AGE scrap composite is up 50¢ per gross ton to \$27.92.

PITTSBURGH—With mills out of the market pending clarification of the steel-labor dispute, trading here in the melting grades was nonexistent. Mills which have had orders on the books have held up shipment until further notice. Dealers and brokers feel that this week should tell the story. Despite the lack of activity, however, the market undertone was firm. A sale of short turnings confirmed the going price at \$22.00, top. Cast grades were firm, but the only change was in mixed yard cast, which moved up 50¢ to a top of \$36.50 on a sale.

CHICAGO—The coal strike and the steel strike danger didn't dampen the market. Generally prices are still buoyant.

The turning and boring market is still confused. The trade reports one reason for the variation in turning prices is that bundled turnings have popped up again at a price which permits the use of higher priced turnings. At the moment the lower price is the maximum some dealers can get for loose turnings while the top price represents those materials being bundled. Typical comment by the trade in describing current conditions is "everything is a deal." Short interest continues to be a factor in the price of many grades.

PHILADELPHIA—The scrap market was stronger here despite the threat of the steel strike and the coal mine close-downs. Buying by consumers was being done at the higher prices. In steel grades, prices were up by \$1.00 to \$2.50 a ton. Turnings were up by 50¢ to \$1.00. Some cast grades were up \$1.00 to \$2.00. Turnings were up 25¢ to \$1.00. Scrap is moving fairly well but the yard intake is reported to have improved very little. Low phos tonnage is not moving.

NEW YORK—The undertone of the market here remains strong and clarification of the steel-labor dispute should increase the activity. The steel picture is about the same and prices for these items remain unchanged for the week. No. 2 heavy melting steel dominates the steel-making grades at present. The cast grades are still in good demand and most of the items are bringing higher prices. Clean cast chemical borings moved up to \$19.00-\$20.00.

DETROIT—The Detroit scrap market is marking time this week, pending settlement of the pension issue in the steel industry. Meanwhile, opinion in the industry appears to be sharply divided as to whether the scrap lists closing early in

the week will go at higher or lower figures than the last month's tonnages. There can be little doubt that the undertone of the market is firm but last minute shifts in public opinion regarding the possibilities of a steel strike will undoubtedly be an important factor determining scrap prices here and elsewhere.

CLEVELAND—In the Sept. 22 issue of THE IRON AGE (pp. 134 and 136) it was reported erroneously that a major consumer in the Valley bought a tonnage of No. 1 heavy melting steel at \$32.00. Facts of the case are that a very large tonnage was bought at \$31.00. Because there has been no substantial buying this week the prices quoted in this issue on all steel-making and blast furnace scrap, railroad grades excepted, are those that would have appeared last week had the error not been made. This applies to Sept. 22 IRON AGE quotations at both Cleveland and Youngstown. THE IRON AGE regrets the error. Closing of the railroad and major industrial lists, coupled with the possibility of a steel strike had the market here and in the Valley pretty well subdued except for short covering at more than quoted prices.

BOSTON—Labor news appears to have an effect on current business in scrap markets, but it has made little change on prices. No. 1 steel holds around \$17.00 to \$18.00, which is its high price of the present move and is almost twice the price it was at one time this summer. Sentiment is better and there is more activity in cast.

BUFFALO—Prices on cast scrap advanced an additional \$2.00 during the week as fairly large tonnage changed hands. No. 1 cupola moved up to \$38.00-\$39.00 with sales reported at both the inside and outside figure of the range. Mixed yard material was quoted about \$1.50 lower. Strength also dominated steelmaking grades as dealers were busy filling recent orders of No. 2 material placed at \$26.00 a ton. This business was followed by dealers rejecting bids of \$28.00 for No. 1 heavy melting.

CINCINNATI—Continuation of the steel strike threat stymied trading temporarily here this week but did not affect prices or otherwise change a strong market. With major district consumers sitting on the sidelines, industrial material continued to move but dealer grades and No. 2 bundles are lagging. However, the coal shortage may force railroads to limit movement of scrap in this district and adjoining areas within the next 10 days.

BIRMINGHAM—Substantial tonnages of openhearth grades of steel have been purchased here since last week's price advance and the material is moving more freely. These purchases, however, do not include railroad offerings and are from accumulations that have been made at dealers' yards during the past 3 months. Receipts of all types of material at the yards are very slow and apparently the trucker will not become active again until cotton picking is over.

ST. LOUIS—Brokers whose short interest is said to be heavy have advanced their buying prices \$3.00 a ton on No. 1 and No. 2 heavy melting steel and bundled sheets. It is still a brokers' market as the steel mills have not done any buying because of the uncertainty of the coal and steel strike situation.

Pittsburgh

No. 1 hvy. melting	\$29.50 to \$30.00
No. 2 hvy. melting	27.50 to 28.00
No. 1 bundles	29.50 to 30.00
No. 2 bundles	22.50 to 23.00
Machine shop turn.	19.00 to 19.50
Mixed bor. and ms. turn.	19.00 to 19.50
Shoveling turnings	21.00 to 22.00
Cast iron borings	20.00 to 21.00
Low phos. plate	31.50 to 32.00
Heavy turnings	24.00 to 25.00
No. 1 RR. hvy. melting	31.50 to 32.00
Scrap rails, random lgth.	34.00 to 35.00
Rails 2 ft and under	38.00 to 39.00
RR. steel wheels	33.00 to 34.00
RR. spring steel	33.00 to 34.00
RR. couplers and knuckles	33.00 to 34.00
No. 1 machinery cast.	39.00 to 40.00
Mixed yard cast.	35.50 to 36.50
Heavy breakable cast.	29.00 to 30.00
Malleable	32.00 to 33.00

Chicago

No. 1 hvy. melting	\$28.00 to \$29.00
No. 2 hvy. melting	26.00 to 27.00
No. 1 factory bundles	28.00 to 29.00
No. 1 dealers' bundles	24.00 to 25.00
No. 2 dealers' bundles	22.00 to 23.00
Machine shop turn.	18.00 to 20.00
Mixed bor. and turn.	17.00 to 19.00
Shoveling turnings	19.00 to 21.00
Cast iron borings	18.00 to 20.00
Low phos. forge crops	33.00 to 34.00
Low phos. plate	31.00 to 32.00
No. 1 RR. hvy. melting	29.00 to 30.00
Scrap rails, random lgth.	35.50 to 36.50
Rerolling rails	41.00 to 42.00
Rails 2 ft and under	40.00 to 41.00
Locomotive tires, cut	37.00 to 38.00
Cut bolsters & side frames	35.00 to 36.00
Angles and splice bars	35.00 to 36.00
RR. steel car axles	43.00 to 44.00
No. 3 steel wheels	31.00 to 32.00
RR. couplers and knuckles	35.00 to 36.00
No. 1 machinery cast.	42.00 to 43.00
No. 1 agricul. cast.	41.00 to 42.00
Heavy breakable cast.	33.00 to 34.00
RR. grate bars	31.00 to 32.00
Cast iron brake shoes	31.00 to 32.00
Cast iron car wheels	35.00 to 36.00
Malleable	37.00 to 39.00

Philadelphia

No. 1 hvy. melting	\$25.00 to \$26.00
No. 2 hvy. melting	24.00 to 25.00
No. 1 bundles	25.00 to 26.00
No. 2 bundles	23.00 to 24.00
Machine shop turn.	16.00 to 17.00
Mixed bor. and turn.	16.00 to 17.00
Shoveling turnings	17.00 to 18.00
Low phos. punchings, plate	27.00 to 27.50
Low phos. 5 ft and under	26.00 to 27.00
Low phos. bundles	25.50 to 26.00
Hvy. axle forge turn.	25.00 to 26.00
Clean cast chem. borings	21.50 to 22.50
RR. steel wheels	27.00 to 29.00
RR. spring steel	27.00 to 29.00
No. 1 machinery cast	38.00 to 40.00
Mixed yard cast	37.00 to 38.00
Heavy breakable cast	34.00 to 35.00
Cast iron carwheels	36.00 to 37.00
Malleable	36.00 to 37.00

Cleveland

No. 1 hvy. melting	\$26.50 to \$27.00
No. 2 hvy. melting	24.00 to 24.50
No. 1 bushelings	26.50 to 27.00
No. 1 bundles	26.50 to 27.00
No. 2 bundles	19.50 to 20.00
Machine shop turn.	16.00 to 16.50
Mixed bor. and turn.	17.50 to 18.00
Shoveling turnings	17.50 to 18.00
Cast iron borings	17.50 to 18.00
Low phos. 2 ft and under	28.00 to 28.50
Steel axle turn.	26.50 to 27.00
Drop forge flashings	26.50 to 27.00
No. 1 RR. hvy. melting	32.00 to 33.00
Rails 3 ft and under	39.00 to 40.00
Rails 18 in. and under	40.00 to 41.00
No. 1 machinery cast.	41.00 to 42.00
RR. cast.	41.00 to 42.00
RR. grate bars	32.00 to 33.00
Stove plate	35.00 to 36.00
Malleable	36.00 to 37.00

Youngstown

No. 1 hvy. melting	\$30.50 to \$31.00
No. 2 hvy. melting	28.00 to 28.50
No. 1 bundles	30.50 to 31.00

Scrap IRON & STEEL Prices

Going prices as obtained in the trade by THE IRON AGE, based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

No. 2 bundles	\$22.00 to \$22.50
Machine shop turn.	16.50 to 17.00
Shoveling turnings	19.50 to 20.00
Cast iron borings	19.50 to 20.00
Low phos. plate	31.50 to 32.00

Buffalo

No. 1 hvy. melting	\$28.00 to \$28.50
No. 2 hvy. melting	25.50 to 26.00
No. 1 busheling	25.50 to 26.00
No. 1 bundles	27.00 to 27.50
No. 2 bundles	24.00 to 24.50
Machine shop turn.	19.50 to 20.00
Mixed bor. and turn.	19.50 to 20.00
Shoveling turnings	21.50 to 22.00
Cast iron borings	19.50 to 20.00
Low phos. plate	28.50 to 29.00
Scrap rails, random lgth.	31.50 to 32.00
Rails 2 ft and under	36.50 to 37.00
RR. steel wheels	32.00 to 33.00
RR. spring steel	32.00 to 33.00
RR. couplers and knuckles	32.00 to 33.00
No. 1 cupola cast	38.00 to 39.00
Mixed yard cast.	36.50 to 37.00
Stove plate	36.50 to 37.00
Small indus. malleable	24.00 to 25.00

Birmingham

No. 1 hvy. melting	\$25.00
No. 2 hvy. melting	24.00
No. 2 bundles	22.00
No. 1 busheling	24.00
Machine shop turn.	\$16.00 to 17.00
Shoveling turnings	19.00
Cast iron borings	18.00
Bar crops and plate	29.00 to 30.00
Structural and plate	29.00 to 30.00
No. 1 RR. hvy. melt.	28.00 to 28.50
Scrap rails, random lgth.	29.00 to 30.00
Rerolling rails	33.00 to 34.00
Rails 2 ft and under	34.00 to 35.00
Angles & splice bars	32.00 to 33.00
Std. steel axles	28.00 to 29.00
No. 1 cupola cast	33.50 to 34.00
Stove plate	28.00
Cast iron carwheels	23.00 to 24.00

St. Louis

No. 1 hvy. melting	\$27.00 to \$28.00
No. 2 hvy. melting	24.00 to 25.00
No. 2 bundled sheets	24.00 to 25.00
Machine shop turn.	18.00 to 19.00
Shoveling turnings	18.00 to 19.00
Rails, random lengths	31.00 to 32.00
Rails 3 ft and under	33.00 to 34.00
Locomotive tires, uncut	27.00 to 28.00
Angles and splice bars	33.00 to 34.00
Std. steel car axles	34.00 to 36.00
RR. spring steel	29.00 to 30.00
No. 1 machinery cast	36.00 to 38.00
Hvy. breakable cast.	31.00 to 32.00
Cast iron brake shoes	31.00 to 32.00
Stove plate	31.00 to 32.00
Cast iron car wheels	35.00 to 36.00
Malleable	30.00 to 32.00

New York

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	\$18.50 to \$19.00
No. 2 hvy. melting	17.00 to 18.00
No. 2 bundles	15.00 to 16.00
Machine shop turn.	10.00 to 11.00
Mixed bor. and turn.	10.00 to 11.00
Shoveling turnings	11.00 to 12.00
Clean cast chem. bor.	19.00 to 20.00
No. 1 machinery cast.	30.00 to 32.00
Mixed yard cast.	30.00 to 32.00
Charging box cast.	24.00 to 26.00
Heavy breakable cast.	24.00 to 26.00
Unstrp. motor blocks	25.00 to 26.00

Boston

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	\$17.00 to 18.00
No. 2 hvy. melting	15.00 to 16.00
No. 1 bundles	17.00 to 18.00

No. 2 bundles	\$15.00 to \$16.00
Machine shop turn.	8.00 to 9.00
Mixed bor. and turn.	8.00 to 8.50
Shoveling turnings	8.50 to 9.00
No. 2 busheling	12.00 to 13.00
Clean cast chem. borings	14.00 to 15.00
No. 1 machinery cast.	31.00 to 33.00
No. 2 machinery cast.	27.00 to 28.00
Heavy breakable cast.	18.50 to 19.00
Stove plate	22.00 to 24.00

Detroit

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	\$21.00 to \$22.00
No. 2 hvy. melting	18.00 to 19.00
No. 1 bundles	23.00 to 24.00
New busheling	21.00 to 22.00
Flashings	21.00 to 22.00
Machine shop turn.	14.00 to 15.00
Mixed bor. and turn.	14.00 to 15.00
Shoveling turnings	17.00 to 18.00
Cast iron borings	17.00 to 18.00
Low phos. plate	\$11.00 to \$12.00
No. 1 cupola cast	34.00 to 35.00
Heavy breakable cast	28.00 to 30.00
Stove plate	27.00 to 28.00
Automotive cast	34.00 to 35.00

Cincinnati

Per gross ton, f.o.b. cars:

No. 1 hvy. melting	\$25.50 to \$26.00
No. 2 hvy. melting	21.50 to 22.00
No. 1 bundles	25.50 to 26.00
No. 2 bundles	19.50 to 20.00
Machine shop turn.	13.50 to 14.00
Mixed bor. and turn.	13.50 to 14.00
Shoveling turnings	15.50 to 16.00
Cast iron borings	14.50 to 15.00
Low phos. 18 in. under	32.50 to 33.00
Rails, random lengths	34.00 to 35.00
Rails, 18 in. and under	42.00 to 43.00
No. 1 cupola cast	38.00 to 39.00
Hvy. breakable cast	33.00 to 34.00
Drop broken cast	42.00 to 43.00

San Francisco

No. 1 hvy. melting	\$17.00
No. 2 hvy. melting	15.00
No. 1 bundles	13.00
No. 2 bundles	13.00
No. 3 bundles	10.00
Machine shop turn	9.00
Elec. fur 1 ft and under	28.00
No. 1 RR. hvy. melting	17.00
Scrap rails, random lgth.	17.00
No. 1 cupola cast.	30.00

Los Angeles

No. 1 hvy. melting	\$20.00
No. 2 hvy. melting	18.00
No. 1 bundles	18.00
No. 2 bundles	15.00
No. 3 bundles	13.00
Mach. shop turn.	12.00
Elec. fur 1 ft and under	20.00
No. 1 RR. hvy. melting	20.00
No. 1 cupola cast.	\$32.00 to \$36.00

Seattle

No. 1 hvy. melting	\$16.00
No. 2 hvy. melting	16.00
No. 1 bundles	16.00
No. 2 bundles	15.00
No. 3 bundles	12.00
Elec. fur 1 ft and under	21.00
RR. hvy. melting	19.00
No. 1 cupola cast.	\$20.00 to 27.00
Heavy breakable cast.	20.00

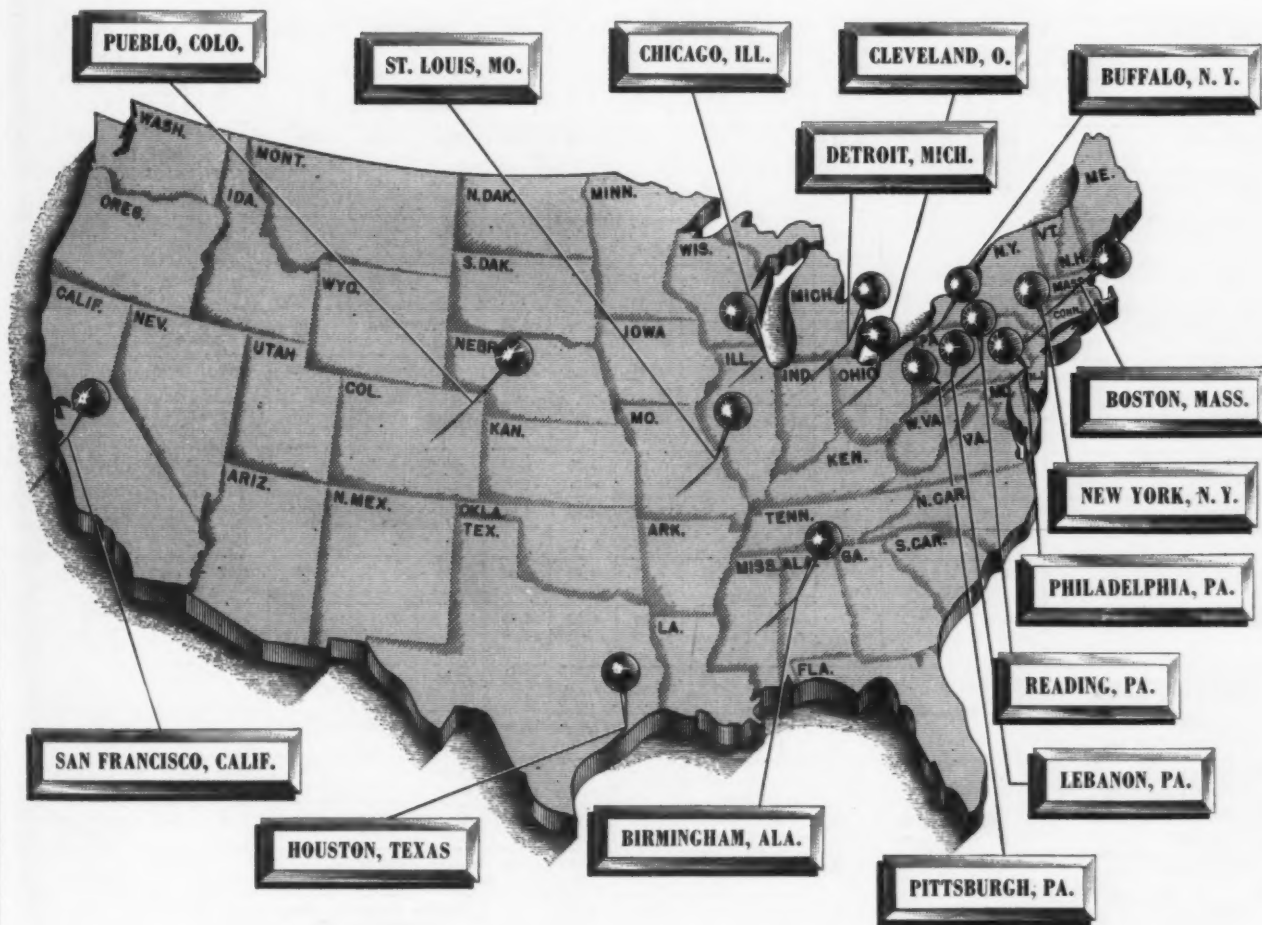
Hamilton, Ont.

Cast grades f.o.b. shipping point:

No. 1 hvy. melting	\$20.00
No. 1 bundles	20.00
No. 2 bundles	19.50
Mechanical bundles	18.00
Mixed steel scrap	16.00
Mixed bor. and turn.	14.00
Rails, remelting	20.00
Rails, rerolling	23.00
Bushellings	14.50
Bush., new fact, prep'd.	18.00
Bush., new fast, unprep'd.	13.00
Short steel turnings	14.00
Cast scrap	\$33.00 to 35.00

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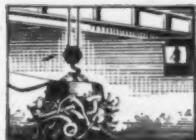
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LEADERS IN IRON AND STEEL SCRAP SINCE 1889

September 29, 1949

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STEEL PRICES

Smaller numbers indicate producing companies. See key on facing page.
Base prices at producing points apply to the sizes and grades produced in these areas. Prices are in cents per lb unless otherwise noted. Extras apply.

	Pitts- burgh	Chicago	Gary	Cleve- land	Birm- ingham	Buffalo	Youngs- town	Spar- rows Point	Granite City	Middle- town	Warren	Detroit	Johns- town	Seattle, S. Frisco, Los Angeles	Fontana
INGOTS															
Carbon forging	\$50.00 1											\$50.00 21			
Alloy	\$51.00 1.17											\$51.00 21			
BILLETS, BLOOMS, SLABS															
Carbon, re-rolling, net ton	\$52.00 1	\$52.00 1	\$52.00 1		\$52.00 11	\$52.00 3	Conshohocken \$57.00 ²⁸						\$52.00 2		\$71.00 19
Carbon forging billets, net ton	\$61.00 1	\$61.00 1.4	\$61.00 1.8	\$61.00 4	\$61.00 11	\$61.00 3.4	Geneva \$61.00 ¹⁸ Conshohocken \$63.00 ²⁸				\$61.00 23	\$61.00 21	\$61.00 2		\$80.00 19
Alloy, net ton	\$63.00 1.17	\$63.00 1.4	\$63.00 1			\$63.00 3.4	Bethlehem, ² Canton, ⁴⁻¹² Massillon ⁴ = \$63.00				Conshohocken \$65.00 ²⁶		\$63.00 21	\$63.00 2	\$82.00 19
PIPE SKELP	3.25 1.5						3.25 1.4					3.25 4			
WIRE RODS	3.40 2.15	3.40 2.4.23	3.40 6	3.40 2	3.40 4.11		3.40 6	3.50 3	Portsmouth 3.40 ²⁹		Worcester 3.70 ²		3.40 3	4.05 ²⁴ S.F., L.A. 4.20 ²³ L.A.	
SHEETS															
Hot-rolled (18 ga. & hr.)	3.25 1.8.9.15	3.25 23	3.25 1.6.8	3.25 4.5	3.25 4.11	3.25 3	3.25 1.6.13	3.25 3	Kokomo, ³⁰ Ashland ⁷ = 3.25		3.25 4	3.45 12	Consh. 3.35 ²⁶	3.95 24 L.A.	4.15 19
Cold-rolled	4.00 ¹⁻⁵ 7.9.15.68		4.00 1.6.8	4.00 4.5	4.00 11	4.00 3	4.00 6	4.00 3	4.20 7	4.00 7	4.00 4	4.20 12		4.95 24 S.F.	4.90 19
Galvanized (10 gage)	4.40 1.9.15		4.40 1.8		4.40 4.11		Niles 4.40 ⁶⁻⁴	4.40 3	Canton 4.40 ⁴	4.40 7	Ashland 4.40 ⁷			5.15 24 S.F., L.A.	
Enameling (12 gage)	4.40 1		4.40 1.8	4.40 4			4.40 6		4.60 22	4.40 7		4.70 12			
Long terms (10 gage)	4.80 9.15		4.80 1							4.80 7					
Hi Str. Low Alloy, h.r.	4.95 1.5	4.95 1	4.95 1.6.8	4.95 4.5	4.95 11	4.95 3	4.95 1.6	4.95 3	Conshohocken 4.95 ²⁶		4.95 4	5.15 12			
Hi Str. Low Alloy, c.r.	6.05 1.5		6.05 1.6.8	6.05 4.5		6.05 3	6.05 6	6.05 3			6.05 4	6.25 12			
Hi Str. Low Alloy, galv.	6.75 1			6.75 4				6.75 3	Canton 6.75 ⁴						
STRIP															
Hot-rolled	3.25 5.7.9.28	3.25 23.66	3.25 1.6.8	3.25 5	3.25 11	3.25 3	3.25 1.6.13	3.25 3	Ashland 3.25 ⁷	3.25 7	3.25 4	3.45 12.47	Atlanta 3.40 ²⁵	4.00 ²² S.F., L.A.	4.40 19
Cold-rolled	4.00 5.7.9.63	4.15 66	4.00 8	4.00 2.5		4.00 3	4.00 6.13. 40.48	4.00 3	New Haven 4.50 ²⁻⁸		4.00 ⁴⁻⁹ 4.25 ⁴⁻⁹	4.20 12.47 4.25 ¹³⁻¹⁸		4.25 ²³ S.	4.30 19
Hi Str. Low Alloy, h.r.	4.95 5		4.95 1.6.8	4.95 5	4.95 11	4.95 3	4.95 1.6.13	4.95 3			4.95 4	5.15 12			
Hi Str. Low Alloy, c.r.	6.05 5			6.05 2.5		6.05 3	6.05 6.13	6.05 3			6.05 4	6.25 12		4.00 ²²⁻⁴⁻²³ S.F., L.A. 4.25 ²³ S.	5.05 19
TINPLATE†															
Cokes, 1.50 lb. base box	\$7.75 1.5.9.15		\$7.75 1.6.8		\$7.85 11			\$7.85 3	\$7.95 22		7.75 4			8.50 24 S.F.	
Electrolytic 0.25, 0.50, 0.75 lb. box															
BLACKPLATE, 29 ga. Hollowware enameling	5.30 1.5.15		5.30 1.6.8					5.40 3	5.50 22		5.30 4				
BARS															
Carbon Steel	3.35 1.5.17	3.35 1.4.28	3.35 1.6.8	3.35 4	3.35 4.11	3.35 3.4	3.35 1.4.6	3.35 3	Atlanta 3.50 ²³	Canton 3.35 ⁴		3.55 12	3.35 3	4.00 ²³ L.A. 4.05 ²⁴ S.F., L.A. 4.10 ²³ S., S.F.	4.00 19
Reinforcing††	3.35 1.5	3.35 4	3.35 1.6.8	3.35 4	3.35 4.11	3.35 3.4	3.35 1.4.6	3.35 3	Atlanta 3.50 ²³	Canton 3.35 ⁴			3.35 3		4.00 19
Cold-finished	3.95 ² 4.00 ²⁻⁴ 17.55.69.71	4.00 2.23.69. 70	4.00 4.73.74	4.00 2.61		4.00 79	4.00 6.57 40		Putnam, Newark=4.40 ²⁶ Cumberland=3.95 ²³ Massillon, Canton=4.00 ⁴			4.30 12			
Alloy, hot-rolled	3.75 1.17	3.75 1.4.23	3.75 1.6.8			3.75 2.4	3.75 1.6	Bethlehem, ² Canton, ⁴⁻¹² Massillon ⁴ = 3.75			3.75 23	4.05 12	3.75 2	4.80 22 L.A.	4.75 19
Alloy cold-drawn	4.65 2.17.52.69.71	4.65 2.23. 69.70	4.65 4.73.74	4.65 2.61		4.65 3.70	4.65 6.57		Massillon=4.65 ⁴ Bethlehem=4.65 ²³		4.65 25	Canton=4.85 ⁴⁻¹² Newark, ²⁹ Worcester ² =4.95			
Hi Str. Low Alloy, h.r.	5.10 1.5		5.10 1.6.8	5.10 4	5.10 11	5.10 3	5.10 1.6	Bethlehem=5.10 ³				5.30 12	5.10 3		
PLATE															
Carbon steel	3.40 1.5	3.40 1	3.40 1.6.8	3.40 4	3.40 ⁴⁻¹¹	3.40 ³⁻¹	3.40 ³⁻⁸	3.40 ³	Coatesville=3.50 ²¹ Claymont=3.50 ²³			3.65 12	3.40 3	4.30 22 S.	4.00 19
Floor plates	4.55 1	4.55 1	4.55 8	4.55 5				Conshohocken=3.50 ²⁸		Geneva=3.40, ¹⁸ Harrisburg=3.60 ²⁵					
Alloy	4.40 1	4.40 1	4.40 1					Conshohocken=4.40 ²⁸		4.40 3	Coatesville =4.50 ²¹		4.40 3		
Hi Str. Low Alloy	5.20 1.5	5.20 1	5.20 1.8	5.10 4.6	5.20 11		5.20 6	5.20 3	Conshohocken=5.20 ²⁸ Geneva=5.20 ¹⁸			5.45 12	5.20 3		
SHAPES, Structural	3.25 1.5	3.25 1.22	3.25 1.6.8		3.25 11	3.30 3		Bethlehem=3.30, ² Geneva=3.25 ¹⁸ Minnequa, Colo.=3.75 ¹⁴					3.30 3	3.80 ²³ S.F. 3.85 ²³ L.A.	3.95 19
Hi Str. Low Alloy	4.95 1.5	4.95 1	4.95 1.6.8		4.95 11	5.05 3	4.95 6	Bethlehem=5.05 ²					5.05 3	3.90 ²³ S. 3.85 ²⁴ L.A.	
MANUFACTURERS' WIRE Bright	4.15 2.5.15	4.15 ⁴⁻²³ 2.34		4.15 2.77	4.15 4.11	Port- smouth 4.15 ²⁹	4.15 6	4.25 3		Duluth=4.15, ² Worcester=4.45 ² Pueblo=4.50 ¹⁴		4.15 3		5.10 ²⁴ S.F. 5.10 ²³ L.A. 5.10 ²⁴ L.A.	
PILING, Steel sheet	4.05 1	4.05 1				4.05 3									

STAINLESS STEELS

Base prices, in cents per pound,
f.o.b. producing point

Product	301	302	303	304	316	321	347	410	418	430
Ingot, rerolling.....	12.75	13.50	15.00	14.50	22.75	18.25	20.00	11.25	13.75	11.50
Slabs, billets, rerolling.....	17.00	18.25	20.25	19.25	30.25	24.50	26.75	15.00	18.50	15.25
Forg. discs, die blocks, rings	30.50	30.50	33.00	32.00	49.00	38.50	41.00	24.50	25.00	25.00
Billets, forging.....	24.25	24.25	26.25	25.50	39.00	29.00	32.75	19.50	20.00	20.00
Bars, wire, structurals.....	28.50	28.50	31.00	30.00	46.00	34.00	38.50	23.00	23.50	23.50
Plates.....	32.00	32.00	34.00	34.00	50.50	39.50	44.00	26.00	26.50	26.50
Sheets.....	37.50	37.50	39.50	39.50	53.00	45.50	50.00	33.00	33.50	35.50
Strip, hot-rolled.....	24.25	25.75	30.00	27.75	46.00	34.50	38.75	21.25	28.00	21.75
Strip, cold-rolled.....	30.50	33.00	36.50	35.00	55.00	44.50	48.50	27.00	33.50	27.50

Numbers correspond to producers. See Key below.

PRODUCING POINTS—Sheets: Midland, Pa., 17; Brackenridge, Pa., 28; Butler, Pa., 7; McKeesport, Pa., 1; Washington, Pa., 38, 39; Baltimore, 37; Middletown, Ohio, 7; Massillon, Ohio, 4; Gary 1; Bridgeville, Pa., 59; New Castle, Ind., 55; Lockport, N. Y., 46.

Strip: Midland, Pa., 17; Cleveland, 2; Carnegie, Pa., 41; McKeesport, Pa., 54; Reading, Pa., 36; Washington, Pa., 38; W. Leechburg, Pa., 28; Bridgeville, Pa., 59; Detroit, 47; Massillon, Canton, Ohio, 4; Middletown, Ohio, 7; Harrison, N. J., 49; Youngstown, 48; Lockport, N. Y., 46; New Britain, Conn., 58; Sharon, 13.

Bars: Baltimore, 7; Duquesne, Pa., 1; Munhall, Pa., 1; Reading, Pa., 36; Titusville, Pa., 59; Washington, Pa., 39; McKeesport, Pa., 1, 54; Bridgeville, Pa., 59; Dunkirk, N. Y., 28; Massillon, Ohio, 4; Chicago, 1, 67; Syracuse, N. Y., 17; Watervliet, N. Y., 28; Waukegan, Ill., 2; Lockport, N. Y., 46; Canton, Ohio, 42.

Wire: Waukegan, Ill., 2; Massillon, Ohio, 4; McKeesport, Pa., 54; Bridgeport, Conn., 44; Chicago, 67; Trenton, N. J., 48; Harrison, N. J., 80.

Structurals: Baltimore, 7; Massillon, Ohio, 4; Chicago, 1, 67; Watervliet, N. Y., 28; Bridgeport, Conn., 44.

Plates: Brackenridge, Pa., 28; Butler, Pa., 7; Chicago, 1; Munhall, Pa., 1; Midland, Pa., 17; New Castle, Ind., 55; Lockport, N. Y., 46; Middletown, 7; Washington, Pa., 39; Cleveland, Massillon, 4.

Forged discs, die blocks and rings: Pittsburgh, 1, 17; Syracuse, 17; Ferndale, Mich., 28.

Forging billets: Midland, Pa., 17; Baltimore, 7; Washington, Pa., 39; McKeesport, 54; Massillon, Canton, Ohio, 4; Watervliet, 28; Pittsburgh, Chicago 1.

KEY TO STEEL PRODUCERS

With Home Offices

- 1 Carnegie-Illinois Steel Corp., Pittsburgh
- 2 American Steel & Wire Co., Cleveland
- 3 Bethlehem Steel Co., Bethlehem
- 4 Republic Steel Corp., Cleveland
- 5 Jones & Laughlin Steel Corp., Pittsburgh
- 6 Youngstown Sheet & Tube Co., Youngstown
- 7 Armco Steel Corp., Middletown, Ohio
- 8 Inland Steel Co., Chicago
- 9 Weirton Steel Co., Weirton, W. Va.
- 10 National Tube Co., Pittsburgh
- 11 Tennessee Coal, Iron & R.R. Co., Birmingham
- 12 Great Lakes Steel Corp., Detroit
- 13 Sharon Steel Corp., Sharon, Pa.
- 14 Colorado Fuel & Iron Corp., Denver
- 15 Wheeling Steel Corp., Wheeling, W. Va.
- 16 Geneva Steel Co., Salt Lake City
- 17 Crucible Steel Co. of America, New York
- 18 Pittsburgh Steel Co., Pittsburgh
- 19 Kaiser Co., Inc., Oakland, Calif.
- 20 Portsmouth Steel Corp., Portsmouth, Ohio
- 21 Lukens Steel Co., Coatesville, Pa.
- 22 Granite City Steel Co., Granite City, Ill.
- 23 Wisconsin Steel Co., South Chicago, Ill.
- 24 Columbia Steel Co., San Francisco
- 25 Copperweld Steel Co., Glassport, Pa.
- 26 Alan Wood Steel Co., Conshohocken, Pa.
- 27 Midvale Co., Philadelphia
- 28 Allegheny Ludlum Steel Corp., Pittsburgh
- 29 Worth Steel Co., Claymont, Del.
- 30 Continental Steel Corp., Kokomo, Ind.
- 31 Rotary Electric Steel Co., Detroit
- 32 Laclede Steel Co., St. Louis
- 33 Northwestern Steel & Wire Co., Sterling, Ill.
- 34 Keystone Steel & Wire Co., Peoria, Ill.
- 35 Central Iron & Steel Co., Harrisburg, Pa.
- 36 Carpenter Steel Co., Reading, Pa.
- 37 Eastern Stainless Steel Corp., Baltimore
- 38 Washington Steel Corp., Washington, Pa.

Notes to Steel Price Table:

†Special coated mfg. terms, deduct \$1.10 from 1.50-lb coke base box price. Can-making quality blackplate, 55 to 125-lb, deduct \$2.00 from 1.50-lb coke base box.

‡Straight lengths only from producer to fabricator.

- 39 Jessop Steel Co., Washington, Pa.
- 40 Blair Strip Steel Co., New Castle, Pa.
- 41 Superior Steel Corp., Carnegie, Pa.
- 42 Timken Steel & Tube Div., Canton, Ohio
- 43 Babcock & Wilcox Tube Co., Beaver Falls, Pa.
- 44 American Chain & Cable Co., Inc., New York
- 45 John A. Roebling's Sons Co., Trenton, N. J.
- 46 Simonds Saw & Steel Co., Fitchburg, Mass.
- 47 McLouth Steel Corp., Detroit
- 48 Cold Metal Products Co., Youngstown
- 49 Thomas Steel Co., Warren, Ohio
- 50 Wilson Steel & Wire Co., Chicago
- 51 Sweet's Steel Co., Williamsport, Pa.
- 52 Superior Drawn Steel Co., Monaca, Pa.
- 53 A. M. Byers Co., Pittsburgh
- 54 Fifth Sterling Steel & Carbide Corp., McKeesport, Pa.
- 55 Ingersoll Steel Div., Chicago
- 56 Latrobe Electric Steel Co., Latrobe, Pa.
- 57 Fitzsimons Steel Co., Youngstown
- 58 Stanley Works, New Britain, Conn.
- 59 Universal-Cyclops Steel Corp., Bridgeville, Pa.
- 60 Vanadium-Alloys Steel Co., Latrobe, Pa.
- 61 Cuyahoga Steel & Wire Co., Cleveland
- 62 Bethlehem Pacific Coast Steel Corp., San Francisco
- 63 Follansbee Steel Corp., Pittsburgh
- 64 Niles Rolling Mill Co., Niles, Ohio
- 65 Atlantic Steel Co., Atlanta
- 66 Acme Steel Co., Chicago
- 67 Joslyn Mfg. & Supply Co., Chicago
- 68 Detroit Steel Corp., Detroit
- 69 Wyckoff Steel Co., Pittsburgh
- 70 Bliss & Laughlin, Inc., Harvey, Ill.
- 71 Columbia Steel & Shifting Co., Pittsburgh
- 72 Cumberland Steel Co., Cumberland, Md.
- 73 La Salle Steel Co., Chicago
- 74 Monarch Steel Co., Inc., Indianapolis
- 75 Empire Steel Co., Mansfield, Ohio
- 76 Mahoning Valley Steel Co., Niles, Ohio
- 77 Oliver Iron & Steel Co., Pittsburgh
- 78 Pittsburgh Screw & Bolt Co., Pittsburgh
- 79 Standard Forgings Corp., Chicago
- 80 Driver Harris Co., Harrison, N. J.

PIPE AND TUBING

Base discounts, f.o.b. mills.
Base price, about \$200.00 per net ton.

Standard, Threaded and Coupled

Steel, butt weld*	Black	Galv
1/2-in.	43 to 41	26 1/2 to 24 1/2
3/4-in.	46 to 44	30 1/2 to 28 1/2
1-in.	48 1/2 to 46 1/2	33 1/2 to 31 1/2
1 1/4-in.	49 to 47	34 to 32
1 1/2-in.	49 1/2 to 47 1/2	34 1/2 to 32 1/2
2-in.	50 to 48	35 to 33
2 1/2 to 3-in. ..	50 1/2 to 48 1/2	35 1/2 to 33 1/2

Steel, lap weld

2-in.	39 1/2	26 to 24
2 1/2 to 3-in. ..	43 1/2 to 42 1/2	28 to 27
3 1/2 to 6-in.	46 1/2 to 42 1/2	31 to 27

Steel, seamless

2-in.	38 1/2	23
2 1/2 to 3-in. ..	41 1/2	26
3 1/2 to 3-in.	43 1/2	28

Wrought Iron, butt weld

1/2-in.	+20 1/2	+47
3/4-in.	+10 1/2	+36
1 & 1 1/4 in.	+4 1/2	+27
2-in.	— 1 1/2	+23 1/2
3-in.	— 2	+23

Wrought Iron, lap weld

2-in.	+7 1/2	+31
2 1/2 to 3 1/2-in. ..	+5	+26 1/2
4-in.	—	+20 1/2
4 1/2 to 8-in.	+2	+22

Extra Strong, Plain Ends

Steel, butt weld

1/2-in.	42 to 40	27 to 25
3/4-in.	46 to 44	31 to 29
1-in.	48 to 46	34 to 32
1 1/4-in.	48 1/2 to 46 1/2	34 1/2 to 32 1/2
1 1/2-in.	49 to 47	35 to 33
2-in.	49 1/2 to 47 1/2	35 1/2 to 33 1/2
2 1/2 to 3-in. ..	50 to 48	36 to 34

Steel, lap weld

2-in.	39 1/2 to 38 1/2	25 to 24
2 1/2 to 3-in. ..	44 1/2 to 42 1/2	30 to 28
3 1/2 to 6-in.	48 to 44	33 1/2 to 31 1/2

Steel, seamless

2-in.	37 1/2	23
2 1/2 to 3-in. ..	41 1/2	27
3 1/2 to 6-in.	45	30 1/2

Wrought Iron, butt weld

1/2-in.	+16	+40
3/4-in.	+9 1/2	+34
1 to 2-in.	— 1 1/2	+23

Wrought Iron, lap weld

2-in.	+4 1/2	+27 1/2
2 1/2 to 4-in.	— 5	+16
4 1/2 to 6-in.	— 1	+20 1/2

For threads only, butt weld, lap weld and seamless pipe, one point higher discount (lower price) applies. For plain ends, butt weld, lap weld and seamless pipe 3-in. and smaller, three points higher discount (lower price) applies, while for lap weld and seamless 3 1/2-in. and larger four points higher discount (lower price) applies. On butt weld and lap weld steel pipe, jobbers are granted a discount of 5 pct. *Fontana, Calif., deduct 11 points from figures in left columns.

BOILER TUBES

Seamless steel and electric welded commercial boiler tubes and locomotive tubes, minimum wall. Prices per 100 ft at mill in carload lots, cut length 4 to 24 ft inclusive.

OD in.	Gage	Seamless H.R.	Electric Weld H.R.	C.D.
2	13	\$19.18	\$22.56	\$18.60
2 1/2	12	25.79	30.33	25.03
3	12	28.68	33.76	27.82
3 1/2	11	35.85	42.30	34.78
4	10	44.51	52.35	43.17

CAST IRON WATER PIPE

	Per net ton
6 to 24-in., del'd Chicago	\$95.70
6 to 24-in., del'd N. Y.	\$92.50 to \$97.40
6 to 24-in., Birmingham	\$2.50
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipment; rail and water shipment less	109.30
Class "A" and gas pipe, \$5 extra; 4-in. pipe is \$5 a ton above 6-in.	

Numbers after producing points
correspond to steel producers.
See key on previous page.

MERCHANT WIRE PRODUCTS

To the dealer, f.o.b. mill

	Base Column Pittsburg, Calif.
Standard & coated nails*	103
Galvanized nails*	103
Woven wire fence†	109
Fence posts, carloads††	112
Single loop bale ties	106
Galvanized barbed wire**	123
Twisted barbed wire	123

* Pgh., Chi., Duluth; Worcester, 6 columns higher. † 15% gage and heavier.
** On 80 rod spools, in carloads. †† Duluth, Joliet and Johnstown.

Base per Pittsburg,
100 lb C&H/.

Annealed fence wire†	\$4.80	\$5.75
Annealed, galv. fencing†	5.25	6.20
Cut nails, carloads††	6.75	...

† Add 30¢ at Worcester; 10¢ at Sparrows Pt.

†† Less 20¢ to jobbers.

PRODUCING POINTS — Standard, coated or galvanized nails, woven wire fence, bale ties, and barbed wire: Alabama City, Ala., 4; Atlanta, 65; Alliquippa, Pa. (except bale ties), 5; Bartonville, Ill. (except bale ties), 34; Chicago, 4; Donora, Pa., 2; Duluth, 2; Fairfield, Ala., 11; Johnstown, Pa. (except bale ties), 3; Joliet, Ill., 2; Kokomo, Ind., 30; Minnequa, Colo., 14; Monessen, Pa. (except bale ties), 18; Pittsburgh, Calif., 24; Portsmouth, Ohio, 20; Rankin, Pa. (except bale ties), 2; Sparrows Point (except woven fence), 3; Sterling, Ill., 33; San Francisco (except nails and woven fence), 14; Torrance, Calif. (nails only), 24; Worcester (nails only), 2.
Fence posts: Duluth, 2; Johnstown, Pa., 3; Joliet, Ill., 2; Minnequa, Colo., 14; Moline, Ill., 4; Williamsport, Pa., 51.
Cut nails: Wheeling, W. Va., 15; Conshohocken, Pa., 26.

CLAD STEEL

Base prices, cents per pound, f.o.b. mill

	Plate	Sheet
Stainless-carbon		
No. 304, 20 pct.		
Coatesville, Pa. (21)...	*26.50	
Washgtn, Pa. (39)...	*26.50	*22.50
Claymont, Del. (29)...	*26.50	
Conshohocken, Pa. (26)		*22.50
New Castle, Ind. (55)...	*26.50	*24.00
Nickel-carbon		
10 pct, Coatesville, (26)	27.50	
Inconel-carbon		
10 pct, Coatesville, (21)	36.00	
Monel-carbon		
10 pct, Coatesville, (21)	29.00	
No. 302 Stainless-copper-stainless, Carnegie, Pa. (41)		75.00
Aluminized steel sheets, Hot dip, Butler, Pa., (7)...		7.75

* Includes annealing and pickling, or sandblasting.

ELECTRICAL SHEETS

24 gage, HR cut lengths, f.o.b. mill

	Cents per lb
Armature	5.45
Electrical	5.95
Motor	6.70
Dynamo	7.50
Transformer 72	8.05
Transformer 65	8.60
Transformer 58	9.30
Transformer 52	10.10

PRODUCING POINTS—Beech Bottom, W. Va., 18; Brackenridge, Pa., 28; Butler, Pa., 7; Follansbee, W. Va., 63; Granite City, Ill., 23; Indiana Harbor, Ind., 8; Mansfield, Ohio, 75; Niles, Ohio, 64; 76; Toronto, Ohio, 63; Vandergrift, Pa., 1; Warren, Ohio, 4; Zanesville, Ohio, 7.

BOLTS, NUTS, RIVETS, SET SCREWS

Consumer Prices

(Bolts and nuts f.o.b. mill Pittsburgh, Cleveland, Birmingham or Chicago)

Base discount less case lots

Machine and Carriage Bolts

	Pct Off List
½ in. & smaller x 6 in. & shorter	35
9/16 & ¾ in. x 6 in. & shorter	37
¾ in. & larger x 6 in. shorter	34
All diam., longer than 6 in.	30
Lag, all diam over 6 in. longer	35
Lag, all diam x 6 in. & shorter	37
Plow bolts	47

Nuts, Cold Punched or Hot Pressed

(Hexagon or Square)	
½ in. and smaller	35
9/16 to 1 in. inclusive	34
1 ¼ to 1 ½ in. inclusive	32
1 ½ in. and larger	27
On above bolts and nuts, excepting plow bolts, additional allowances of 15 pct for full container quantities. There is an additional 5 pct allowance for carload shipments.	

Semifinished Hexagon Nuts

	USS	SAE
7/16 in. and smaller	41	41
¾ in. and smaller	38	38
¾ in. through 1 in.	37	37
9/16 in. through 1 in.	37	37
1 ¼ in. through 1 ½ in.	35	37
1 ½ in. and larger	28	28
In full case lots, 15 pct additional discount.		

Stove Bolts

Packages, nuts separate	\$61.75
In bulk	70.00

Large Rivets

	(½ in. and larger) Base per 100 lb
F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham	\$6.75
F.o.b. Lebanon, Pa.	6.75

Small Rivets

	(7/16 in. and smaller) Pct off List
F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham	43

Cap and Set Screws

	(In packages) Pct Off List
Hexagon head cap screws, coarse or fine thread, up to and incl. 1 in. x 6 in., SAE 1020, bright	46
¾ to 1 in. x 6 in., SAE (1035), heat treated	35
Milled studs	19
Flat head cap screws, listed sizes	5
Fillister head cap, listed sizes	28

C-R SPRING STEEL

Base per pound f.o.b. mill

0.26 to 0.40 carbon	4.00¢
0.41 to 0.60 carbon	5.50¢
0.61 to 0.80 carbon	6.10¢
0.81 to 1.05 carbon	8.05¢
1.06 to 1.35 carbon	10.35¢
Worcester, add 0.30¢.	

LAKE SUPERIOR ORES

(51.50% Fe, Natural Content, Delivered Lower Lake Ports)

	Per gross ton
Old range, bessemer	\$7.60
Old range, nonbessemer	7.45
Mesabi, bessemer	7.35
Mesabi, nonbessemer	7.20
High phosphorus	7.20

RAILS, TRACK SUPPLIES

F.o.b. mill

Standard rails, 100 lb and heavier, No. 1 quality, per 100 lb	\$3.20
Joint bars, 100 lb	4.35
Light rails per 100 lb	3.65

Base Price
cents per lb

Track spikes	5.35
Axles	5.20
Screw spikes	8.00
Tie plates	4.05
Tie plates, Pittsburgh, Torr., Calif.*	4.20
Track bolts, untreated	8.25
Track bolts, heat treated, to railroads	8.50
*Seattle, add 30¢.	

PRODUCING POINTS—Standard rails: Bessemer, Pa., 1; Ensley, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, Pa., 3; Minnequa, Colo., 14; Steelton, Pa., 3.

Light rails: All the above except Indiana Harbor and Steelton, plus Fairfield, Ala., 11; Johnstown, Pa., 3.

Joint bars: Bessemer, Pa., 1; Fairfield, Ala., 11; Indiana Harbor, Ind., 8; Joliet, Ill., 1; Lackawanna, N. Y., 3; Steelton, Pa., 3.

Track spikes: Fairfield, Ala., 11; Indiana Harbor, Ind., 6, 8; Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 5; Chicago, 4; Struthers, Ohio, 6; Youngstown, 4.

Track bolts: Fairfield, Ala., 11; Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 77, 78.

Axles: Fairfield, Ala., 11; Gary, 1; Indiana Harbor, Ind., 79; Johnstown, Pa., 3; McKees Rocks, Pa., 1.

Tie plates: Fairfield, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, N. Y., 3; Pittsburgh, Calif., 24; Pittsburgh, 4; Seattle, 62; Steelton, Pa., 3; Torrance, Calif., 24.

TOOL STEEL

F.o.b. mill

	W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	—	90.5¢
18	4	1	—	—	5	\$1.43
18	4	2	—	—	—	\$1.035
1.5	4	1.5	8	—	—	65¢
6	4	2	6	—	—	69.5¢
High-carbon-chromium						53¢
Oil hardened manganese						21¢
Special carbon						24.5¢
Extra carbon						32¢
Regular carbon						19¢

Warehouse prices on and east of Mississippi are 2 ½¢ per lb higher. West of Mississippi, 4 ½¢ higher.

COKE

Furnace, beehive (f.o.b. oven)	Net Ton
Connellsville, Pa.	\$14.00 to \$14.50
Foundry, beehive (f.o.b. oven)	
Connellsville, Pa.	\$15.50 to \$16.00
Foundry, oven coke	
Buffalo, del'd	\$20.90
Chicago, f.o.b.	20.40
Detroit, f.o.b.	19.40
New England, del'd	22.70
Seaboard, N. J., f.o.b.	22.00
Philadelphia, f.o.b.	20.45
Swedeland, Pa., f.o.b.	20.40
Plainesville, Ohio, f.o.b.	20.90
Erie, del'd	\$20.25 to 21.04
Cleveland, del'd	22.62
Cincinnati, del'd	21.71
St. Paul, f.o.b.	\$23.50
St. Louis, del'd	21.60
Birmingham, del'd	19.75

FLUORSPAR

Washed gravel fluor spar, f.o.b. cars	
Rosiclare, Ill.	
Effective CaF ₂ Content:	Base price per net ton
70% or more	\$37.00
60% or less	34.00

WAREHOUSE PRICES

Base prices, f.o.b. warehouse, dollars per 100 lb.
(Metropolitan area delivery, add 15c to base price except Cincinnati
and New Orleans (*), add 10c; New York, Chicago and Boston, add 20c.)

CITIES	SHEETS			STRIP		PLATES	SHAPES	BARS		ALLOY BARS			
	Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled		Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled, A 4815 As-rolled	Hot-Rolled, A 4140-50 Ann.	Cold-Drawn, A 4815 As-rolled	Cold-Drawn, A 4140-50 Ann.
Baltimore	5.31	6.21- 6.41	6.96- 7.11	5.37	....	5.56	5.36	5.42	6.16	....	9.60- 10.10	....	....
Birmingham	4.85	5.75	6.15	4.85	....	5.10	4.90	4.90	6.59	....	....	....	....
Boston	5.55	6.46- 6.76	7.11- 7.61	5.60	6.75	5.75	5.42	5.52	6.02	9.36- 9.67	9.67- 9.97	10.72	11.02
Buffalo	4.85	5.75	7.42- 7.57	5.24	7.27	5.35	5.06	4.95	5.40	9.30	9.60	10.65	10.95
Chicago	4.85	5.75	6.95	4.85	5.45- 6.15	5.10	4.96	4.90	5.46	8.90	9.26	10.25	10.55
Cincinnati*	5.16- 5.51	5.84- 6.28	6.59- 6.93	5.28- 5.43	....	5.53- 5.85	5.33	5.33- 5.48	6.08- 6.29	9.74	9.99	11.19	11.44
Cleveland	4.85	5.75	6.70	5.03	....	5.21	5.01	5.01	5.48	9.05	9.35	10.40	10.70
Detroit	5.28- 5.32	6.07- 6.18	7.38- 7.58	5.27- 5.47	6.27- 6.58	5.52- 5.57	5.33- 5.40	5.23- 5.35	6.06- 6.18	9.67	9.92	11.11	11.35
Houston	6.70- 6.85	....	7.30	6.70	....	6.70	6.20- 6.70	6.40- 6.65	7.09	10.45	10.40	11.45	11.70
Indianapolis	5.29	6.13	7.44	5.29	7.36	5.54	5.34	5.34	6.14	11.25	11.39	....	....
Kansas City	5.45	6.35	7.40- 7.45	5.45	6.05- 6.90 ^a	5.70	5.50	5.50	6.05	9.50	8.30	10.85	9.65
Los Angeles	5.45	7.00	7.45	5.95	7.35 ^a	5.50	5.45	5.60	7.25	....	....	....	....
Memphis	5.75- 5.80	6.60	7.20	5.80- 5.95	6.80	5.95- 6.00	5.75	5.75	6.53	....	....	....	....
Milwaukee	5.03	5.93	7.02	5.03- 5.38	6.32	5.28	5.08	5.08	5.63	9.53	9.73	10.98	11.23
New Orleans*	5.95	6.75	....	6.15	....	6.15	5.95	5.95	6.65 ^a	....	....	....	....
New York	5.40	6.31	6.85- 6.90	5.62	6.76	5.65	5.33	5.57	6.31	9.26	9.58	10.63	10.93
Norfolk	6.00	....	....	6.20	....	6.05	6.05	6.05	7.05	....	....	....	....
Omaha	6.13	....	8.33	6.13	....	6.38	6.18	5.18	6.98	....	....	....	....
Philadelphia	4.95	6.24 ^{1,3}	6.63	5.40	6.29	5.35	5.10	5.40	5.96	9.05	9.35	10.62	10.87
Pittsburgh	4.85	5.75	6.90	5.00	6.00	5.05	4.90	4.90	5.40	8.90	9.20	10.25	10.55
Portland	6.50 ^a - 7.05	8.80	8.80- 9.10	6.85 ^a	....	6.30 ^a	6.35 ^a	6.35 ^a	8.25 ^{1,4}	10.50 ^a	10.10 ^a	....	....
Salt Lake City	7.06	7.06	8.65	7.45 ³	....	5.65 ³	5.50 ³	7.10 ^a	8.15	....	....	....	....
San Francisco	6.15 ^a	7.50 ²	7.60	6.75 ^a	8.25 ³	6.35 ^a	5.90 ^a	5.90 ^a	7.55	9.60	10.00	11.20	11.60
Seattle	6.70 ^a - 7.10	8.15 ² - 8.65	8.80- 9.30	6.70 ^a	....	6.35 ^a	6.30 ^a	6.20 ^a	8.15 ^{1,4}	....	10.35 ^{1,5}	....	13.10 ^{1,6}
St. Louis	5.22- 5.37	6.12- 6.27	7.32	5.22	6.68- 7.54	5.47	5.27	5.27	5.82	9.27- 9.72	9.57- 9.97	10.62- 11.17	10.92- 11.42
St. Paul	5.44	6.19- 6.34	7.54- 7.64	5.44	6.82	5.54- 6.69	5.49	5.49	6.04	9.49	9.79	10.84	11.14

BASE QUANTITIES

Standard unless otherwise keyed on prices.

HOT-ROLLED:

Sheets, strip, plates, shapes and bars, 400 to 1000 lb.

COLD-ROLLED:

Sheets, 400 to 1499 lb strip, extras on all quantities. Bars 1000 lb and over.

ALLOY BARS:

1000 to 1999 lb.

GALVANIZED SHEETS:

450 to 1499 lb.

EXCEPTIONS:

(1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 300 to 4999 lb; (4) 300 to 9999 lb; (5) 2000 lb and over; (6) 1000 lb and over; (7) 400 to 14,999 lb; (8) 400 lb and over; (9) 800 to 1999 lb; (10) 500 to 999 lb; (11) 400 to 3999 lb; (12) 450 to 3749 lb; (13) 400 to 1999 lb; (14) 1500 lb and over; (15) 1000 to 4999 lb; (16) 4000 lb and over; (17) up to 1999 lb; (18) 1000 to 1499 lb; (19) 1500 to 3499 lb; (20) 6000 lb and over.

PIG IRON PRICES

Dollars per gross ton. Delivered prices do not include 3 pct tax on freight.

PRODUCING POINT PRICES						DELIVERED PRICES (BASE GRADES)							
Producing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.	Consuming Point	Producing Point	Rail Freight Rate	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Bethlehem	48.00	48.50	49.00	49.50	.....	Boston	Everett	\$0.50 Arb.	.....	50.00	50.50	.....	.....
Birmingham	38.88	39.38	.....	.....	.....	Boston	Steelton	6.90	.....	.....	.....	.....	60.90
Buffalo	46.00	46.50	47.00	.....	.....	Brooklyn	Bethlehem	4.29	52.79	53.29	53.79	.....	.....
Chicago	46.00	46.50	46.50	47.00	.....	Cincinnati	Birmingham	6.70	45.58	46.08	.....	.....	.....
Cleveland	46.00	46.50	46.50	47.00	51.00	Jersey City	Bethlehem	2.63	51.13	51.63	52.13	.....	.....
Duluth	46.00	46.50	46.50	47.00	.....	Los Angeles	Geneva-Ironton	7.70	53.70	54.20	.....	.....	.....
Erie	46.00	46.50	46.50	47.00	.....	Mansfield	Cleveland-Toledo	3.33	49.33	49.83	50.33	54.33	.....
Everett	.....	50.00	50.50	.....	.....	Philadelphia	Bethlehem	2.39	50.39	50.89	51.39	51.89	.....
Granite City	47.90	48.48	48.90	.....	.....	Philadelphia	Swedeland	1.44	49.44	49.94	50.44	50.94	.....
Ironton, Utah	46.00	46.50	.....	.....	.....	Philadelphia	Steelton	3.09	.....	.....	.....	.....	57.09
Lone Star, Texas	46.00	46.50†	.....	.....	.....	Rochester	Buffalo	2.63	48.63	49.13	49.63	.....	.....
Pittsburgh	46.00	46.50	46.50	47.00	.....	San Francisco	Geneva-Ironton	7.70	53.70	54.20	.....	.....	.....
Shawnee, Utah	46.00	46.50	.....	.....	.....	Seattle	Geneva-Ironton	7.70	53.70	54.20	.....	.....	.....
Steelton	46.00	46.50	46.50	47.00	.....	St. Louis	Granite City	0.75 Arb.	48.65	49.15	49.65	.....	.....
Streitberg, Ohio	46.00	46.50	49.00	49.50	54.00	Syracuse	Buffalo	3.58	49.58	50.08	50.58	.....	.....
Swedeland	46.00	46.50	46.50	47.00	.....	Gulf Ports	Lone Star, Texas	.....	50.50	51.00†	.....	.....	.....
Toledo	46.00	46.50	46.50	47.00	.....							
Troy, N. Y.	46.00	46.50	46.50	47.00	.....							
Youngstown	46.00	46.50	46.50	47.00	.....							

† Low Phos. Southern Grade.

† Low Phos. Southern Grade.

Producing point prices are subject to switching charges; silicon differential (not to exceed 50c per ton for each 0.25 pct silicon content in excess of base grade which is 1.75 to 3.25 pct for foundry iron); phosphorus differentials, a reduction of 35c per ton for phosphorus content of 0.70 pct and over manganese differential, a charge not to exceed 50c per ton for each 0.50 pct manganese

content in excess of 1.00 pct. \$2 per ton extra may be charged for 0.5 to 0.75 pct nickel content and \$1 per ton extra for each additional 0.25 pct nickel.

Silvery iron (blast furnace) silicon 0.01 to 0.50 pct. C/L per g.t., f.o.b. Jackson, Ohio—\$50.50; f.o.b. Buffalo, \$60.75. Add \$1.00 per ton for each additional 0.50 pct Si up to 17 pct.

Add 50c per ton for each 0.50 pct Mn over 1.00 pct. Add \$1.00 per ton for 0.75 pct or more P. Bessemer ferro-silicon prices are \$1.00 per ton above silvery iron prices of comparable analysis.

Charcoal pig iron base price for low phosphorus \$60.00 per gross ton, f.o.b. Lyle, Tenn. Delivered Chicago, \$68.50. High phosphorus charcoal pig iron is not being produced.

FERROALLOYS

Ferromanganese

78-82% Mn, Maximum contract base price, gross ton, lump size.	
F.o.b. Birmingham	\$174
F.o.b. Niagara Falls, Alloy, W. Va., Welland, Ont.	\$172
F.o.b. Johnstown, Pa.	\$174
F.o.b. Sheridan, Pa.	\$172
F.o.b. Etna, Clairton, Pa.	\$175
\$2.00 for each 1% above 82% Mn, penalty, \$2.15 for each 1% below 78%.	
Briquets—Cents per pound of briquet, delivered, 66% contained Mn.	10.45
Carload, bulk	12.05
Ton lots	12.05
Less ton lots	12.95

Spiegeleisen

Contract prices gross ton, lump, f.o.b.	
16-19% Mn 19-21% Mn	
3% max. Si 3% max. Si	
Palmerton, Pa.	\$64.00
Pgh. or Chicago	65.00
	66.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.	
96% min. Mn, 0.2% max. C, 1% max. Si, 2% max. Fe.	
Carload, packed	35.5
Ton lots	37.0

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.	
Carloads	28
Ton lots	30
Less ton lots	32

Low-Carbon Ferromanganese

Contract price, cents per pound Mn contained, lump size, delivered.	
	Carloads Ton Less
0.07% max. C, 0.06% P, 90% Mn	25.25 27.10 28.30
0.10% max. C	24.75 26.60 27.80
0.15% max. C	24.25 26.10 27.30
0.30% max. C	23.75 25.60 26.80
0.50% max. C	23.25 25.10 26.30
0.75% max. C	
7.00% max. Si	20.25 22.10 23.30

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C. For 2% max. C, deduct 0.2c.	
Carload bulk	8.95
Ton lots	10.60
Briquet, contract basis carlots, bulk delivered, per lb of briquet	10.30
Ton lots	11.90
Less ton lots	12.80

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., \$77.00 gross ton, freight allowed to normal trade area; Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., \$73.50. Add \$1.00 per ton for each additional 0.50% Si up to and including 18%. Add \$1.00 for each 0.50% Mn over 1%.	
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Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.	
96% Si, 2% Fe	20.70
97% Si, 1% Fe	21.10

Silicon Briquets

Contract price, cents per pound of briquet, bulk, delivered, 40% Si, 1 lb Si briquets.	
Carload, bulk	6.30
Ton lots	7.90
Less ton lots	8.80

Electric Ferrosilicon

Contract price, cents per pound contained Si, lump size, bulk, in carloads, delivered.	
25% Si	17.00
50% Si	11.30
75% Si	13.50
85% Si	14.65
90-95% Si	16.50

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.	
	Cast Turnings Distilled
Ton lots	\$2.05 \$2.95 \$3.75
Less ton lots	2.40 3.30 4.55

Ferrochrome

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered.	
(65-72% Cr, 2% max. Si)	
0.06% C	28.75
0.10% C	28.25
0.15% C	28.00
0.20% C	27.75
0.50% C	27.50
1.00% C	27.25
2.00% C	27.00
65-69% Cr, 4-9% C	20.50
62-66% Cr, 4-6% C, 6-9% Si	21.35
Briquets—Contract price, cents per pound of briquet, delivered, 60% chromium.	
Carload bulk	13.75
Ton lots	15.25
Less ton lots	16.15

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5c per lb to regular low carbon ferrochrome price schedule. Add 5¢ for each additional 0.25% N.	
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S. M. Ferrochrome

Contract price, cents per pound chromium contained, lump size, delivered.	
High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.	
Carloads	21.50
Ton lots	23.75
Less ton lots	25.25
Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25% max. C.	
Carloads	27.75
Ton lots	30.05
Less ton lots	31.85

Chromium Metal

Contract prices, cents per lb chromium contained packed, delivered, ton lots. 97% min. Cr, 1% max. Fe.	
0.20% max. C	1.09
0.50% max. C	1.05
9.00% min. C	1.04

Other Ferroalloys

Ferrotungsten, standard, lump or 1/4 x down, packed, per pound contained W, 5 ton lots, delivered	\$2.25
Ferrovandium, 35-55%, contract basis, delivered, per pound, contained, V.	
Openhearth	\$2.90
Crucible	3.00
High speed steel (Primos)	3.10
Vanadium pentoxide, 88-92% V ₂ O ₅ contract basis, per pound contained V ₂ O ₅	\$1.20
Ferrocolumbium, 50-60% contract basis, delivered, per pound contained Cb.	
Ton lots	\$2.90
Less ton lots	2.95
Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo.	\$1.10
Calcium molybdate, 45-50%, f.o.b. Langeloth, Pa., per pound contained Mo.	94¢
Molybdenum oxide briquets, f.o.b. Langeloth, Pa.; bags, f.o.b. Wash., Pa., per pound contained Mo.	95¢
Ferrotitanium, 40%, regular grade, 10% C max. f.o.b. Niagara Falls, N. Y., freight allowed east of Mississippi and north of Baltimore, ton lots, per lb contained Ti	\$1.28
Ferrotitanium, 25%, low carbon, f.o.b. Niagara Falls, N.Y., freight allowed east of Mississippi and north of Baltimore, ton lots, per lb contained Ti	\$1.40
Less ton lots	1.45
Ferrotitanium, 15 to 19%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed east of Mississippi and north of Baltimore, carloads per net ton	\$160.00

Ferrophosphorus, electrolytic, 23-26%, carlots, f.o.b. Siglo, Mt. Pleasant, Tenn., \$3 unitage, per gross ton	\$65.00
10 tons to less carload	75.00
Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.	
Ton lots	21.00¢
Zirconium, 12-15%, contract basis, lump, delivered, per pound of alloy.	
Carload, bulk	6.60¢
Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.	
Carload	7.40¢
Ton lots	8.80¢

REFRACTORIES

(F.o.b. Works)

Fire Clay Brick	Carloads, Per 1000
First quality, Pa., Ky., Mo., Ill. (except Salina, Pa., add \$5)	\$80.00
No. 1 Ohio	74.00
Sec. quality, Pa., Md., Ky., Mo., Ill.	74.00
No. 2 Ohio	66.00
Ground fire clay, net ton, bulk (except Salina, Pa., add \$1.50)	11.50
Silica Brick	
Mt. Union, Pa., Ensley, Ala.	\$80.00
Childs, Pa.	84.00
Hays, Pa.	85.00
Chicago District	89.00
Western, Utah and Calif.	95.00
Super Duty, Hays, Pa., Athens, Tex.	\$85.00 to 95.00
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	\$13.75 to 14.00
Silica cement, net ton, bulk, Hays, Pa.	16.00
Silica cement, net ton, bulk, Ensley, Ala.	15.00
Silica cement, net ton, bulk, Chicago District	\$14.75 to 15.00
Silica cement, net ton, bulk, Utah and Calif.	21.00

Chrome Brick	Per Net Ton
Standard chemically bonded, Balt., Chester	\$69.00
Magnesite Brick	
Standard, Balt. and Chester	\$91.00
Chemically bonded, Balt. and Chester	80.00

Grain Magnesite	Std. %-in. grains
Domestic, f.o.b. Balt. and Chester, in bulk, fines removed	\$56.00 to 56.50
Domestic, f.o.b. Chewelah, Wash., in bulk with fines	\$30.50 to 31.00
In sacks with fines	35.00 to 35.50
Dead Burned Dolomite	
F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk, Midwest, add 10¢; Missouri Valley, add 20¢	\$12.25

METAL POWDERS	
Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.	
Swedish sponge iron c.i.f.	
New York, ocean bags	7.4¢ to 9.0¢
Domestic sponge iron, 90+%	
Fe, carload lots	9.0¢ to 15.0¢
Electrolytic iron, annealed, 99.5+%	31.5¢ to 39.5¢
Electrolytic iron, unannealed, minus 325 mesh, 99+%	48.5¢
Hydrogen reduced iron, minus 300 mesh, 98+%	63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 microns, 98%, 99.8%+ Fe	90.0¢ to \$1.15
Aluminum	27.00¢
Antimony	63.75¢
Brass, 10 ton lots	22.75 to 25.25¢
Copper, electrolytic	27.75¢
Copper, reduced	27.63¢
Cadmium	\$2.40
Chromium, electrolytic, 99% min.	\$3.50
Lead	21.43¢
Manganese	48.00¢
Molybdenum, 99%	\$2.61
Nickel, unannealed	66.00¢
Nickel, spherical, minus 30 mesh, unannealed	68.00¢
Silicon	34.00¢
Solder powder	8.5¢ plus metal cost
Stainless steel, 302	75.00¢
Tin	\$1.15 to \$1.25
Tungsten, 99%	\$2.40
Zinc, 10 tons lots	15.50 to 18.25¢

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Motor-driven R-C Centrifugal Blower, 24" type OIB, capacity 19,600 CFM.

ROTARY
Type RCD Rotary Positive Blower, used for conveying. Capacity 1,300 CFM.

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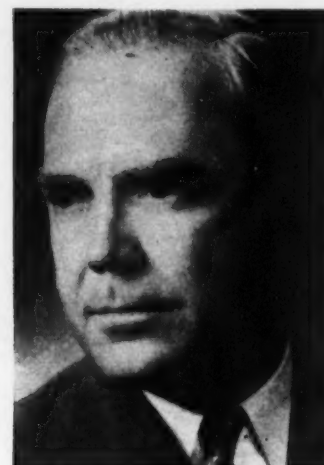
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Iron Age Introduces

Continued from Page 23

lamps for the same company. Walter J. Maytham, Jr. was appointed Pacific Coast district manager taking over the duties of Charles A. Dostal, vice-president, who will retire next May after 43 years' service with the company.



WALTER S. MARDER, assistant to president, Daystrom Corp.

Walter S. Marder has been appointed assistant to the president of the DAYSTROM CORP., Olean, N. Y., a subsidiary of ATF Inc. Mr. Marder has been associated with the ATF organization for 26 years and the Daystrom Corp. for the past 2, having served the latter as controller, and most recently vice-president.

Henry H. Hubbard has been named vice-president and general manager of the Electromaster electric range division of the PHILCO CORP., Philadelphia. Mr. Hubbard has been connected with the company since its organization in 1929, and was formerly vice president in charge of plant manufacturing.

John B. Hayes has been made sales representative for the Electrode Div. of GREAT LAKES CARBON CORP., Niagara Falls, N. Y. He will handle sales of carbon and graphite electrodes and other carbon products in nine Southern states.



KENNETH H. MAC WATT, director of engineering sales, L. O. Koven & Brother, Inc.

Kenneth H. Mac Watt will succeed W. D. Birch as director of engineering sales for L. O. KOVEN & BROTHER, INC., Jersey City, N. J. Prior to joining Koven, Mr. Mac Watt held various positions in engineering and sales with the American Locomotive Co.

Luis J. Rubio has been appointed special representative for the Caribbean area, WILLYS-OVERLAND MOTORS, INC., Toledo. He joined the Willys export company in 1947 as field correspondent.

Charles A. Butcher has been elected a vice-president of the ELLIOTT CO., Jeanette, Pa. Mr. Butcher will continue to function as general manager of the Crocker-Wheeler Electric Mfg. Co., Ampere, N. J., a recently acquired division of Elliott Co.

Lloyd Wolf has been named chief engineer in charge of the Engineering Dept. of the TWIN DISC CLUTCH CO., Racine, Wisc. Mr. Wolf joined Twin Disc in July, 1947, as chief development engineer.

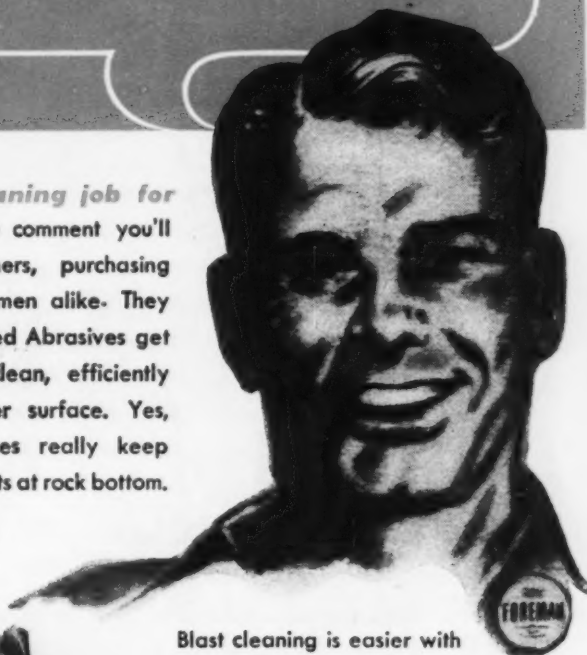
Lad Landau has joined the MAURAY I. COHEN CO., New York, as manager of the steel export department. For the past 7 years he was associated with the Mercantile Metal & Ore Corp., New York.

Charles W. Sprenger has been appointed manager of hardware-automotive sales for the CARBORUNDUM CO., Niagara Falls, N. Y., to succeed George E. Dresser, who is retiring after 22 years service on the

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Blast cleaning is easier with Certified. Both Samson Shot and Angular Grit can be used over and over again. With them on your job you get *more work done ...every day.* Order Certified today for better cleaning!

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IRON AGE INTRODUCES

Continued

company's sales force. L. P. Mercer, formerly manager of the company's Sales Training Dept., has been selected as assistant manager of hardware-automotive sales.



R. P. SNYDER, chief engineer, Harbison-Walker Refractories Co.

R. P. Snyder has been appointed to succeed D. B. Hendryx as chief engineer for HARBISON-WALKER REFRACTORIES CO., Pittsburgh. Mr. Snyder has been associated with the Company for the past 16 years. Mr. Hendryx has resigned from the organization in order to establish his own office for engineering and consultant work.

John J. Jackson has been appointed superintendent of the foundry at the WRIGHT AERONAUTICAL CORP., Wood-Ridge, N. J. He succeeds the late Harry Lamker, who headed Wright foundry work for more than a quarter of a century until his death last June.

Henry D. Wilson and Bruce W. Ellis have been elected to the board of directors, BUFFALO PUMPS, INC., Buffalo. Mr. Wilson is the present factory manager of the company, and Mr. Ellis will continue in his position as chief engineer of the firm.

J. F. Hawkins has been appointed district sales manager of the Detroit territory of Page Steel & Wire Div. of AMERICAN CHAIN & CABLE CO., INC., Bridgeport. Mr. Hawkins was formerly with the company in Pittsburgh.

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Open hearth furnaces sealed and insulated with THERM-O-FLAKE show increased operating efficiency due to higher air preheat and higher flame temperature. There is an important increase in thermal efficiency in regeneration. Radiation losses are safely minimized with a reduction in fuel costs.

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IRON AGE INTRODUCES

Continued



DAVID C. BORLEN, works manager, Yawman & Erbe Mfg. Co.

David C. Borlen has been appointed works manager of YAWMAN & ERBE MANUFACTURING CO., Rochester, N. Y. Mr. Borlen succeeds James R. Clark who has served as works manager for over 31 years, and whose resignation and retirement from company activities was simultaneously made known.

J. J. Collins has been appointed general manager of IRON & STEEL PRODUCTS, INC., Chicago. Mr. Collins served the Erie R. R. in various executive and supervisory capacities for 37 years prior to coming with ISP.

Louis R. Ripley has been elected president of the HELI-COIL CORP., Long Island City, N. Y. Mr. Ripley was formerly an officer of the Pepsi-Cola Co. and president of the United Cinephone Corp.

OBITUARY

C. George Le Sueur, 51, Export manager of Wyandotte Chemical Co., Wyandotte, Mich., died Sept. 11.

William C. Henning, president, A. Leschen & Sons Rope Co., St. Louis, died Sept. 6.

Henry B. Greensted, 68, metallurgical consultant, Algoma Steel Corp., Ltd., Sault Ste. Marie, Ont., died on Sept. 1.

Resume Your Reading on Page 24

THE IRON AGE

FREE

PUBLICATIONS

Continued from Page 34

dependable coupling. *Diamond Chain Co., Inc.* For more information, check No. 12 on the postcard on p. 35.

Fluid Seals

Strip expanders that will fit any diameter air-hydraulic fluid seal are described in bulletin. Instructions on how to determine correct strip expander are included, as are price lists. *HPL Mfg. Co.* For more information, check No. 13 on the postcard on p. 35.

Refractories

Bulletin gives properties, typical applications and detailed information on various types of refractory materials. *Walsh Refractories Corp.* For more information, check No. 14 on the postcard on p. 35.

Cleaning and Polishing

Rotary power driven wire and fiber brushes for cleaning and polishing are described in bulletin No. 48-A. Also included are hand brushes of various types price list. *Herold Mfg. Co.* For more information, check No. 15 on the postcard on p. 35.

Tapping Machines

Lead screw tapping machines, available in six sizes, are featured in 12-p. bulletin. Illustrations and specifications of equipment are given. *Cleveland Tapping Machine Co.* For more information, check No. 16 on the postcard on p. 35.

Motor Starter

Features of manually operated, reduced voltage, auto-transformer motor starter, for use with 2-phase, 3-wire or 3-phase motors are described in bulletin. *Allis-Chalmers.* For more information, check No. 17 on the postcard on p. 35.

Resume Your Reading on Page 35

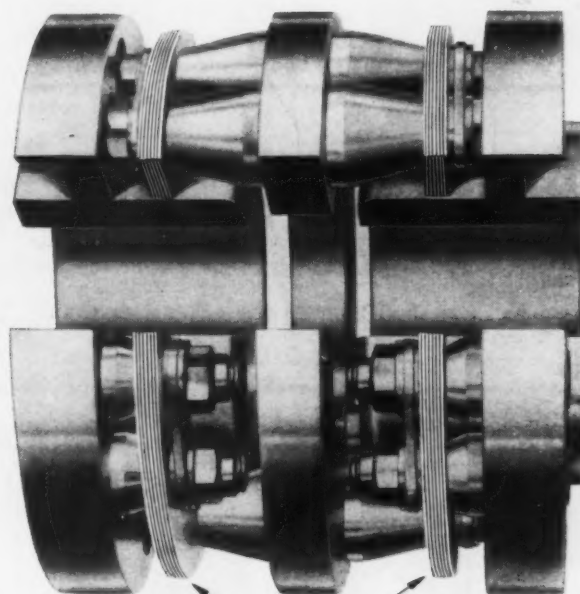
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Patented Flexible Disc Rings of special steel transmit the power and provide for parallel and angular misalignment as well as free end float.

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For such operations Hendrick has an exceptionally large stock of dies and patterns, complete tool equipment, and ample forming and welding facilities.

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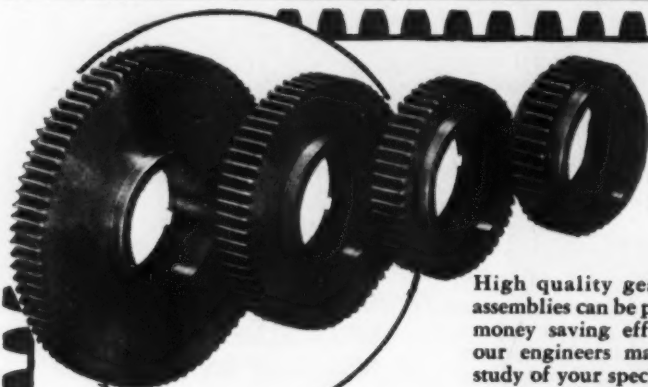
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NEW

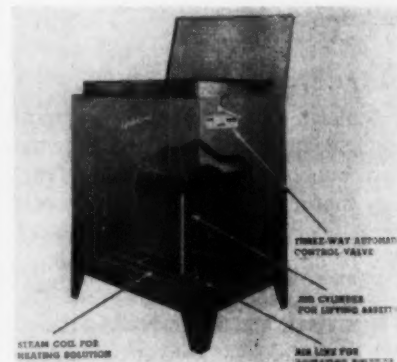
PRODUCTION IDEAS

Continued from Page 38

into the sprayer nozzle. The air stream also has cooling effect on the die surfaces. Oil consumption is said to be reduced with the new unit. *Manzel, Inc.* For more information, check No. 30 on the postcard on p. 35.

Dip Tank

A three-way finger-tip control air valve does the work in the Dip-O-Matic by automatically lowering and raising specially designed



baskets into the cleaning solution. Metal cleaning action is twofold. Old fashioned soaking action helps loosen dirt and grease. New agitated-solution action actively washes parts and releases stubborn dirt and grease that will not soak free. The dip tank has no motors, pumps or gears. Steam heat maintains cleaning solvent at the proper temperature, or cold solutions may be used. Automatic temperature controls are optional equipment. *Hopkins Equipment Co.* For more information, check No. 31 on the postcard on p. 35.

Foundry Sand Handler

A foundry sand handling system, called Handy Sandy, drops sand directly into the flask under the self-closing sand gate by pulling an overhead handle on the unit. No pit or foundation is required and the unit can be placed in a number

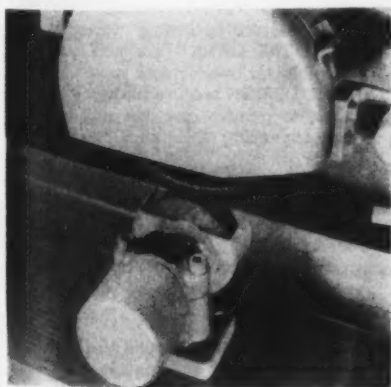
of positions with relation to the bench or molding machine. Conditioned sand is deposited over the feeder or can be discharged onto the feeder from a portable sand



conditioner. The feeder delivers the sand to a bucket elevator that carries it up to an aerator at the top. The aerator discharges ready-to-use sand into the hopper over the bench or molding machine. As the hopper becomes emptied the mold pushes a button to refill it from the heap. One motor operates the entire unit. *Newaygo Engineering Co. For more information, check No. 32 on the postcard on p. 35.*

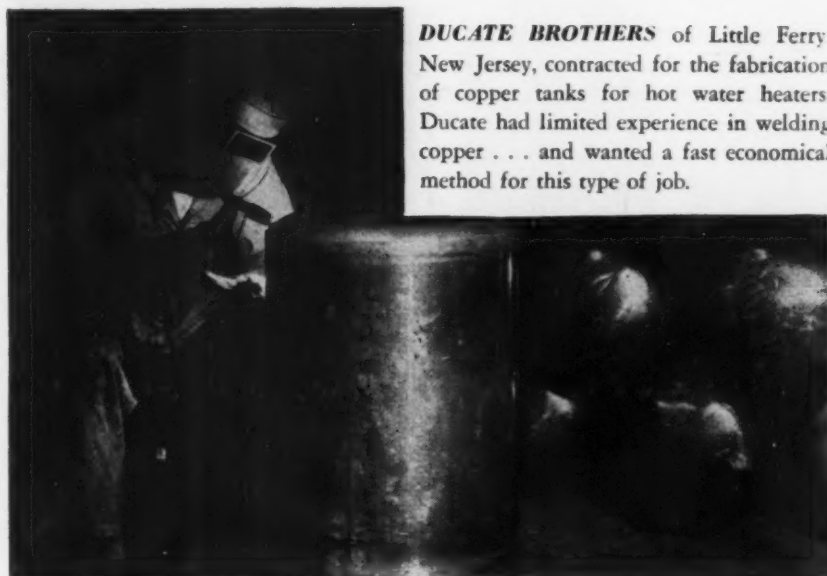
Truing Device

Diamond abrasive wheels can be trued rapidly and with precision with a new brake-controlled truing device. It is small, compact, simple



to set up, and is a self-contained unit driven by the diamond wheel to be trued. This feature obviates the need for reducing the speed of the diamond wheel during the truing cycle. All bond types with the exception of resinoid bonded dia-

Heliwelding speeds fabrication of copper hot water tanks



DUCATE BROTHERS of Little Ferry, New Jersey, contracted for the fabrication of copper tanks for hot water heaters. Ducate had limited experience in welding copper . . . and wanted a fast economical method for this type of job.

George Kotcher, Airco Technical Sales Representative, was called in to recommend the best, and least expensive fabrication method — one that would avoid loss of time and money. He suggested the use of manual Heliwelding.

The company followed this sugges-

tion, and found that its rate of copper tank production was better than anticipated. More important, the method proved extremely economical, allowing complete control of welding variables — and resulting in smooth, high quality welds.

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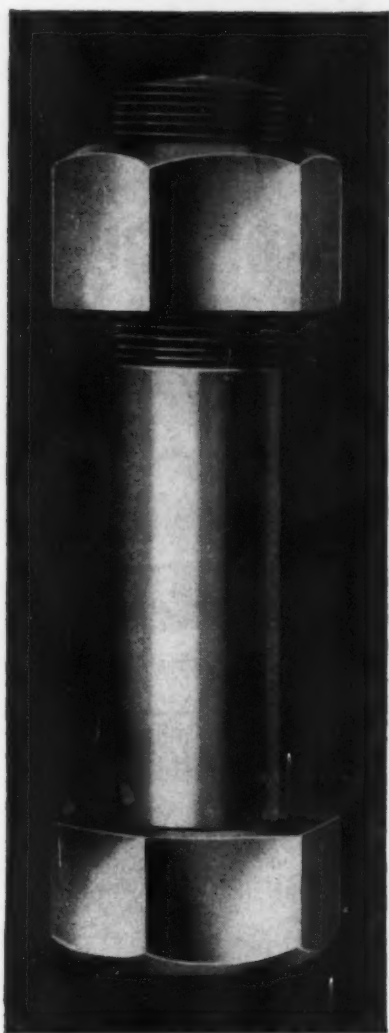
To assure its customers of high efficiency in all applications of the oxyacetylene flame or electric arc, Air Reduction has available the broad, practical experience of its nationwide Technical Sales Division personnel. The collective experience and knowledge of these specialists has helped thousands to a more effective use of Airco processes and products. Ask about this Airco "Plus-Value" service today. Write your nearest Airco office. (In Texas: Magnolia Airco Gas Products Company . . . On West Coast: Air Reduction Pacific Company.)



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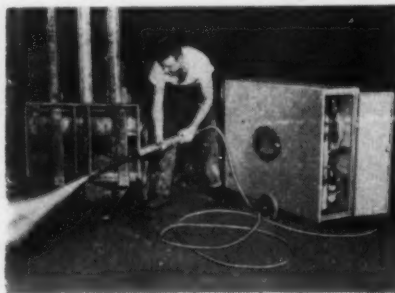
NEW PRODUCTION IDEAS

Continued

mond wheels finer than 220 grit can be trued with the device. Norton Co. For more information, check No. 33 on the postcard on p. 35.

Dry Steam Generator

Clean, odorless dry steam is generated electrically in a new portable unit. Pressures and water level



control are automatic. The compact unit is 4 ft long x 1 ft wide x 34 in. high; weighs 380 lb; and is shipped completely equipped requiring only water hose and electric hook up. Cincinnati Metalcrafts Inc. For more information, check No. 34 on the postcard on p. 35.

Box Dumping Attachment

A skip box dumping device for use where heavy, loose parts must be lifted, moved, stored or delivered to busy production lines, has been developed. The hydraulic de-



vice tilts the box while it is held in an elevated position. The three-sided box is fitted with metal rings at the back. Hooks on the lift truck carriage engage these rings when the box is lifted by the forks. To dump the box, the truck operator actuates a double-acting hydraulic cylinder that raises the



When you have a READING CRANE installed in your plant, you get a crane CUSTOM-BUILT to meet your specific materials handling operation—at no added engineering cost!

Known as UNIT DESIGN, this unique method of crane construction reduces your costs in 2 ways.

- 1 LOWERS FIRST COST—Because READING CRANES offer you a choice of several interchangeable motor, control and hoisting units, you buy no "extras" to solve special handling problems.
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See your distributor for information on how you can get a READING CRANE "tailor made" to your own specifications. Drop us a line for your free copy of "The Why and How of Faster Production."

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READING HOISTS

NEW PRODUCTION IDEAS

Continued

hooks, tilting the box forward. Vertical coil springs assist in returning the box to a horizontal position. Loads up to 4000 lb can be handled. *Towmotor Corp.* For more information, check No. 35 on the postcard on p. 35.

Wire Baskets

Wire mesh baskets with 15 x 11 x 3½ in. ID are designed to step up material handling of small and medium parts. The heavy mesh



basket is suspended in a strong X frame that carries the bulk of the load. Open mesh construction is self draining to allow oils and other liquids to drain off freely when parts are removed from machines. *Jaxon Wire Products.* For more information, check No. 36 on the postcard on p. 35.

Vibration Mounts

For isolating horizontal and rotary machine vibrations, the Finnflex CM-H vibration mounts uses the rubber-in-shear principle. It consists of a steel channel floated in rubber between two steel angles.



Correct angularity between the steel parts and the rubber securely bonded thereto enables the isolator to approximate the flat spot on a stress-strain curve of relative slope. Isolators afford uniform deflection and a load range from 600 to 10,000 lb. Overall height is 2 in. *Finn & Co.* For more information, check No. 37 on the postcard on p. 35.

Resume Your Reading on Page 39



Photo Courtesy
G. A. Gray Co.

Illustrated is a 11022-E ¼ HP Ruthman Gusher Coolant Pump on a Gray 8" 175-ton Planer Type Horizontal, Boring, Drilling and Milling Machine.

LOWER COSTS!

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COOLANT PUMPS

On metal cutting machines

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—Dear Editor. . .

RUSSIAN INDUSTRY

I have recently begun work on my doctoral dissertation here at the Graduate School of Business at Stanford University. The topic chosen for study is "The Iron and Steel Industry in the U.S.S.R. During the Period 1917-1949." It will be appreciated that a study of this nature is not being undertaken to prove the merits of a free competitive order nor to extol the virtues of an ordered economy. It is rather to be an objective study undertaken in an attempt to learn about the iron and steel development in the U.S.S.R. My tentative plans now call for an introduction to the study covering the pre-1917 industry only briefly. This will be followed by short analyses of the industry during the periods of war communism and the N.E.P. Main emphasis will be placed on the period of greatest development, namely since 1928. Subjects in addition to the quantity aspect will include: the role of government, the administrative organization, labor and labor unions, foreign technical assistance, imports and exports of iron and steel products, and if enough material is available, a section on the war years and the postwar years. I have found considerable material here in the Hoover War Library but more information will be needed.

My reason for writing to you is the hope that you may be able to suggest material which would prove helpful in such a study. I do not know if you are equipped to handle such an inquiry, but I do know that from time to time you have published pertinent information. Your long experience in the iron and steel industry certainly has brought into your hands much valuable information along this line.

Any sources, suggestions or other information that you may be able to send me would be very sincerely appreciated. It should be added that I have a fair reading knowledge of the Russian language.

ROBERT J. HOLLOWAY
Palo Alto, Calif.

Gathering authoritative information on the development of the Russian iron and steel industry is quite a difficult task and the subject has been a source of argument for many years. From time to time we have carried articles and items on Russian industry but these have not been comprehensive in nature. A list of sources from which you may be able to obtain material of a more

comprehensive nature has been sent to you. For supplementary reading we suggest the reports on world steel production from the Jan. 2, 1947 and the Jan. 1, 1949 issues and also the article on p 71A of the Sept. 12, 1948 issue. The latter is a report by British Labor leaders on the Russian steel industry following a tour by a delegation. These issues of THE IRON AGE are available at the university library.

The Soviet Union remains the world's most important steel enigma. Published figures on Russian steel production show wide variation, but if the actual production is hidden, we are furnished almost annually with a new set of goals for the expansion of the industry. One set is for 1950 and indicates a target of 28 million net tons of ingots and castings, plus an ultimate goal of 66 million net tons of steel capacity to be achieved in three 5 year plans. The principal items of the current 5 year plan are 45 blast furnaces, 270 steel furnaces and 104 rolling mills.

An interesting aspect of your study might be a review of the sending of steel mill equipment to Russia during and after the war. Very little has been publicized on this but a larger quantity of equipment was sent than generally realized.—Ed.

STAINLESS STEELS

The article, "Machining Stainless Steels," by L. F. Spencer, which appeared in the July 7 issue is, in my estimation the best on the subject. The author's concise explanation of both the metallurgy and machinability of stainless is excellent and should go far to improve selection and use of the available grades of stainless steel. Would you please send me an additional copy of the article.

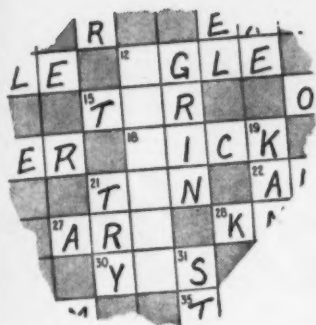
E. F. MANN
Supervisory Industrial Engineer
Atlantic Refining Co.
Philadelphia

THERMOCOUPLES

We have been referred to you in our quest for further information regarding tungsten-molybdenum thermocouples. We understand that the particular article referred to is by R. D. Potter and N. S. Grant and appeared in the March 31 issue. We would appreciate a copy of this article and also any other information you may have on the subject.

W. A. RAY
Chief Engineer
General Controls
Glendale, Calif.

A copy of the article "Tungsten-Molybdenum Thermocouples" is being sent to you. Also enclosed is a bibliography which will serve as a guide for further information.—Ed.



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FATIGUE CRACKS

Continued from Page 20

ability to pop back with the right answers to the scores of inquiries tossed its way. It took a request from Robert Nilsen of Brooklyn to penetrate its stuffed shirt.

"Please send me," wrote Robert, "some information about iron. Also please send samples."

Reader Service was all for sending bound copies of Volumes 1 to 164, inclusive, in order to protect its reputation but the comptroller vetoed the idea. He wouldn't even let them send a sample of iron, pointing to current scrap price quotations. With reluctance the request was forwarded to the American Iron & Steel Institute, which knows almost as much about iron as your f.f.j. and probably has time to take Robert on its knee and tell him about it.

Skittles

In an effort to obtain an authoritative view on how the steel strike situation shaped up, we consulted your f.f.j.'s Summary last week. The final word, according to the Summary, was that "all is not beer and skittles."

Since we consider beer a bloating, gassy beverage, Miss Rheingold notwithstanding, we were relieved that the labor situation was not the same. The skittle angle was mystifying. We had never encountered a skittle, but since the plural skittle seems to be a Siamese twin to beer, we figured it must either be some sort of a pretzel or some high grade beverage to accompany the beer, as in a boilermaker.

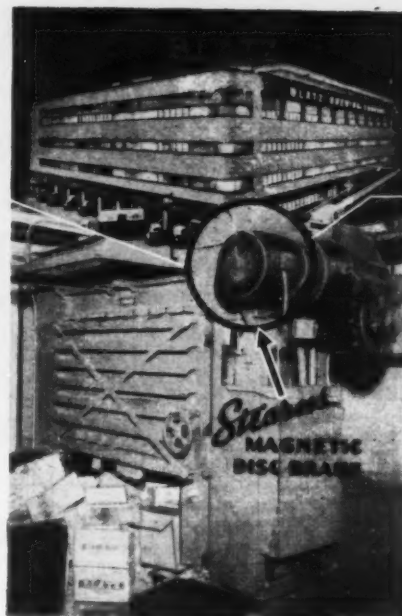
Upon inquiry to the brains department, we were referred to Somerset Maugham's "Cakes and Ale." This reference being of no assistance we resorted to Webster, which proved less interesting reading, but more lucid.

Skittles, we learned, is an English game of ninepins in which a flattened ball or thick rounded disk is thrown to knock down the pins. A skittle is one of the pins.

Further research seemed necessary if we were to gain a true perspective on the relationship of beer and skittles to the steel strike situation. We went out to canvass the local beer joints. We came back bloated and gassy, as we expected, and can burp out confidentially that we had found 762 places with television sets, 67 with shuffleboard games, 13 with darts. But not a single skittles could we find.

Thus we concluded that your f.f.j. was right as usual. All is NOT beer and skittles, and we have research to back it up.

Resume Your Reading on Page 21



Positive Stopping and Holding

Stopping and holding 1400 lbs. of compressed cartons for baling requires the positive, dependable action of a Stearns Magnetic Disc Brake on this baling press at the Blatz Brewery.

In addition this Stearns brake has the job of stopping the fall of the baling platform in the 40 ft. well.

This is only one of many applications efficiently and economically solved with Stearns Magnetic Brakes. Reduce your production costs by eliminating expensive time lost in coasting motors and machinery. For quick stopping and holding without slipping, Stearns brakes are the best.

Available in all sizes and types to fit your needs. Write Stearns Magnetic today — ask for Bulletin 604-E.



A.C. or D.C. Magnetic Brakes for motor or machine mounting.

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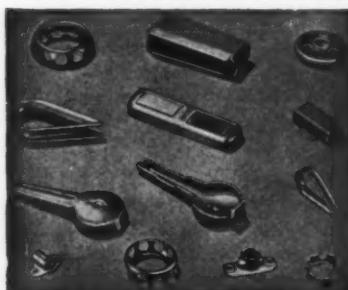
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Billet Breaker 8"—1945, weight 44 ton

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Hill Clutch Open Side Abrasive Belt Grinding Unit. For shafts up to 3/4" thick x 30" wide x 30' long. Driven by 40 & 10 H.P. Motors A.C.

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12" Pope Pyramid Type Plate Bending Roll Capacity 1/2" Plate, Hydraulically operated, complete with elec. equip.
12" Wickes Pyramid Type Plate Bending Roll. Capacity 1 1/2", Motor Driven
20" x 1" Plate Bending Roll, Motor Driven Power elevation top roll

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12" x 3/4" Dies & Krump Model 227 Leaf Brake, Motor Driven with 15 H.P. A.C. Motor

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12"x3/4" All Steel Hydraulic Press Brake, Complete with Motor Compressor & Dies
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30" x 1/2" Press Brake, 1000 ton Capacity, Motor Driven with 75 H.P. motor

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15 ton Harnischfeger 27' Span 230 Volt DC
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60 ton Henry & Wright Dieing Machine, Double Roll Feed, 2" Stroke, Motor Driven
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60,000 lb. Aetna Standard Single Chain Draw Bench, 45 ft. Length of Draw, Motor Driven-NEW 1946

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120H Gould & Eberhardt Universal Gear Hobbing Machine, Capacity to hob spur gears up to 144", helical gears up to 120" dia.

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600 H.P. Westinghouse Reduction Unit Ratio 3:76-1
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1100, 1600 Erie
2500, 3000 lb. Morgan

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300 lb. Chambersburg Pneumatic Motor Driven Forging Hammer, Complete with Motor
1000# Chambersburg Pneumatic Motor Driven Forging Hammer, Complete with Motor
48" x 48" Chambersburg CoccoStamp Hammer
48" x 36" Chambersburg CoccoStamp Hammer
30" x 24" Chambersburg CoccoStamp Hammer

LEVELERS

60" Roller Leveler, 15 Rolls 2-13/16" Dia. Capacity 3/16" Plate

66" Nine Roll Leveler, Rolls 3/4" Diameter, Capacity Max. Gauge .100", Motor Driven

72" Aetna-Standard Roller Leveler, 17 Rolls 5" Dia. Motor Driven, With Coil Pay-Off Reel & Stand

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45" Cutter Hammer Magnet, NEW 1947
46" Magnet, 7 1/2" KW, 220 Volt D.C.

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5 ton Morgan Bridge Type Manipulator Complete with Electrical Equipment

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No. 6 Morgan Six Track Automatic Box Nailing Machine
No. 10 Morgan Ten Track Automatic Box Nailing Machine

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No. 10-B Gray Turret Head Metal Nibbler, M.D. Capacity 9/16", With Circle Cutting Attachment

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24 x 24 x 8' Planer One Rail, One Side Head
32 x 35 x 10' Niles Planer, One Rail Head
36 x 36 x 8' Cincinnati Hypro Planer 2 Rail Hds
48 x 48 x 16' Planer Two Rail, Two Side Heads
84 x 84 x 40' Planer Two Rail, Two Side Heads
120 x 120 x 20' Planer Two Rail, Two Side Heads

PLANERS-OPENSIDE

72"x72"x16' Cincinnati Hypro Openside Planer, Late 48"x48"x16' Cleveland, One Rail, One Side Head

PLANER-PLATE EDGE

30' x 2" Cleveland Plate Edge Planer, Motor Driven, Equipped with 14 Pneumatic Jacks

PRESSES-HYDRAULIC

200 ton Elmes Hydraulic Press, Self Contained 10" Stroke, 32" Distance Between Columns
600 ton Hydraulic Extrusion Press, 35 1/2" Stroke, 29" x 26" Platen Size
1000 ton Chambersburg 4-Column Hydraulic Press, 18" Stroke, Bed Area 48" x 48"

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2000 ton Wood Hydraulic Press, 9" Stroke, 24" x 35" Bed Area

4000 ton Steam Hydraulic Forging Press, 125" x 64" Between Columns, Single Stroke 7", Total Stroke 80", Complete with Accessories

PRESSES-KNUCKLE JOINT

200 ton Model K-1200-30 Clearing Knuckle Joint Press, 4" Stroke, Die Space 25" x 36"
400 ton Model 24-K Bliss Knuckle Joint Press, 4" Stroke, Bed Area 20" x 20"

PRESSES-INCLINABLE

56 ton Minster Double Crank Inclined Press, 6" Stroke, Bolster Plate 21" x 51"
500 ton Clearing G-1084 Dble Crank Gap Frame, 38" Stroke, Area of Slide 48" x 84"

PRESS-STRAIGHT SIDE

26 Bliss Punch Press, 125 ton Capacity 3 1/2" Stroke, Bed Area 24" F to B x 33" B to L. Equipped with Roll Feed and Scrap Cutter

PRESS-TRIMMING

300 ton Chambersburg Double Geared Trimming Press, 8" Stroke, Bolster 40" x 37", Pneumatic Clutch

PUNCH & SHEAR COMBINATIONS

Style G Cleveland Punch & Shear Single End, 60" Throat, Capacity Punch 2" thru 1" plate
Style EF Cleveland Double End Bar & Angle Shear, Motor Driven, Completely equipped NEW 1947
Style EF Cleveland Single End, Arr. M.D. 72" Throat, Capacity 1-3/16" thru 1" Plate Complete with Lysholm Tables

No. 5 Hilles & Jones Single End, Motor Drive, Capacity Punch 2" thru 1 1/2", 45" Throat
No. 12 Williams White Single End, Motor Drive, 72" Throat, Capacity 1 1/2" thru 1 1/2"

RIVETERS

50 ton Hanna Pneumatic Yoke Riveter, 102" Throat 21" Gap

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9 x 20" Schmitz Single Stand Two High
10 x 12" Cold Rolling Mill 3 Stand 2 High
15 x 15" M&G Single Stand Two High Cold Rolling Mill

20" x 30" Mesta Single Stand Two High
20 x 36 Farrel 2 Stand 2 High
20 x 40" Mackintosh Cold Reduction Mill
23 1/4" x 60" Mack-Hemp 3-stand Breakdown Mill
30 x 77" Single Stand Three High Roughing Mill
33 x 76" Three Stand Two High Roughing Mill
8" Two High Hot Mill for rolling strip steel

ROLL-CORRUGATING

Stamco Corrugating Roll, Motor Driven, Rolls 48" wide, designed for 1 1/4" Corrugations, Capacity 28 Gauge Steel

ROLL-FORMING

Tishken 6 Stand No. 6-MLW-1 1/4" Roll Forming Machine Spindles 1 1/2" Dia. Max. Roll Width 6"

ROLL-PLATE STRAIGHTENING

No. 3 Hilles & Jones Plate Straightening Roll, M.D. Six 12" Diameter Rolls, Capacity 18" x 3/4"

ROLLS-TAPER FORGING

No. 1 Ajax Taper Forging Roll, Motor Drive
No. 2 Ajax Taper Forging Roll, Motor Drive
No. 4 Ajax Taper Forging Roll, Motor Drive
No. 5 Ajax Taper Forging Roll, Motor Drive

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48" Kling Friction Saw, Motor Driven Hydraulic Feed, Complete with pump and motor
No. 3 1/2" Kling High Speed Friction Saw, Hydraulic Feed, Complete with pump and motor, Capacity 5 1/2" dia.

SHEAR-BAR

No. 10 Buffalo Armor Plate Bar Shear, M.D. Capacity Shear Rounds 3 1/2", Squares 3 1/2", Flats 12x1 1/2", Etc.

SHEAR-ANGLE

No. 3 Hilles & Jones Double Angle Shear, Capacity 6 x 6 x 1", Motor Driven

SHEAR-ROTARY

No. 25A Quickwork Whiting Rotary Shear, M.D. Capacity 1 1/2" Plate

SHEARS-SQUARING

6" x 1 1/2" Cincinnati Model 1406
6" x 3/4" Niagara No. 86
10' x 3/16" Niagara
10' x 1 1/2" Cincinnati Motor Driven
12' x 1 1/2" Cincinnati Motor Driven
12' x 3/4" Cincinnati Motor Driven
12' x 1 1/2" Cincinnati Model 4312
13' x 1 1/2" United Motor Driven
16' x 3/16" Long & Allister

SLITTERS

13" Standard Heavy Duty Slitter, 3 Cuts of 1/2" to 6 cuts of 16 Ga. Recoiler, Scrap Trimmer, Etc., Incl.
24" Waterbury-Farrel Gang Slitter, Motor Drive, Capacity 5 cuts .375" thick hard rolled material, Complete with Three Roll Collet
18" Yoder Slitting Line, Motor Driven, Capacity 4 cuts .156", Complete with Uncoiler, Recoiler, etc.
72" Yoder Slitter, Motor Driven

STRAIGHTENERS

Sleeper & Hartley Straightening & Cutting Machine Capacity .054" to .125", 12 ft. Cut-Off, M.D.
3/4" Shuster Straightening & Cut-Off Machine 30" Cut-Off, Motor Driven
1/2" Halkin Straightener, 12" Cut-Off Handles Squares, Rounds, Hex., Etc.
No. 1 Medart, Capacity 1/2" to 2 1/2" Round
Kane & Roach Rotary Straightening Roll Capacity 1/2" to 3/4" Dia.
Kane & Roach 5-Roll Straightener Rolls grooved for channels 1" x 5/8" x 1/2" and 3/4" x 1/2"
No. 23 Kane & Roach Shape Straightener, M.D. 18 Rolls 8 1/2" Diameter
No. 4 Sutton Straightening Machine, Motor Drive, Capacity 2" to 6" Round, Timken equipped
Tishken Automatic Straightening & Cut-Off, Capacity 4" wide x 1/4", Motor Driven

SWAGING MACHINES

No. 6A Standard Rotary Swager, V-Belt Drive, Capacity Tubes 3 1/2", Solids 1 1/2"
#412 Ena Machine Co. Rotary Swager Arr. M.D.—Capacity Tubing 4", Die Length 18"—New 1945
No. 5118 Langelier Swaging Machine, M.D. Capacity 6 1/2" Tubes, 4 1/2" Solids, Hot
Waterbury-Farrel Triple Die Swaging Machine, Capacity Tubes 1/2" to 4", Motor Driven

TESTING MACHINES

Tate-Emery Air Cell
120 KG Vickers Hardness Testing Machine
50,000# Riehle Universal
60,000# Riehle Universal Hydraulic
100,000# Riehle Bros. Universal
200,000# Elmes Compression Testing Machine, Hydraulic Type

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1200 KVA at 40 C Rise Indoor Type Oil Insulated Water Cooled Lectromelt Arc Furnace Transformer 13,500 volt Primary, Secondary Full Capacity 215-199 & 182 volts. Reduced Capacity 165-147 & 139

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20 Draft Superior Wire Drawing Machine, Capacity Wire 18 Ga. to .011", Motor Dr. Spooling Attachment, Wire Pointer, Wire Puller Incl. NEW 1946
No. 12 HIC Vaughn Wire Drawing Machine, Motor Drive, Rated 2100 Fpm on 12" blocks with 11 drafts 10 on cover & 1 finish
U. S. Multislide Machine, Motor Driven, Max. Length Stock Feed 4 1/2", Max. Length Slide Movement 3/4", Slide Table Approx. 14 1/2" Sq.

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AUTOMATICS

Brown & Sharpe #000, H.S. #4 & 6
Cenomatic 8 sp. 1 1/2" cap.
New Britain Gridley 61-2 1/4" 6 Sp.

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Giddings & Lewis #0, #25T
Lucas #31 horiz.
Universal 3" horiz. equipped

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Cincinnati Sup. Ser. 21", 24"
Reynolds Excelsior 21"; Foote Burt 6 sp.
Norton Model E-5 Multi-Spindle, 14 Spindles
Canedy-Otto 3"-9" col.
Carlton 8"-19" col.; Allen 6 sp.

ENGRAVERS

Gorton #3U, 3Z, 2 dimensional, 3L, 3 dimensional
Gorton Cutter Grinders 375-2, 265-8
Deckel G1, G1F

GEAR EQUIPMENT

Fellows #7, #72, #725 High Speed Shapers
Mikron Gear Hobber
Fellows, Michigan, Gleason Checkers

GRINDERS, MISCELLANEOUS

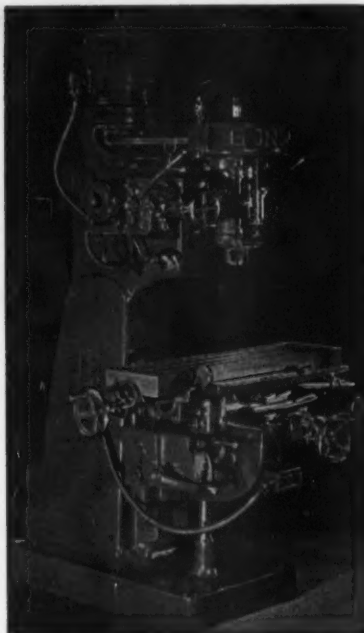
Brown & Sharpe #5 cyl., 3" x 18"
Brown & Sharpe #1, #3 Univ. #13 Tool
Cincinnati #2 Centerless Filmatia, 12 x 36 Univ.
Cine. 12 x 48" Univ., Gardner #228, 30" dia.
Covel #91A Univ. Tool & Cutter, Hammond #4
Heald 72A3 Int. Centerless Sizemattia, #1 Tool
Landis #4H Cyl. 4x12", Centerless, #6 Thread
Norton #2 Tool & Cutter, Type C 6x18", 6x30"
Oliver #518 Drill Pointer, Sellers 4G, Black D'mond
Pratt & Whitney Radius #R8, K.O. Lee Tool
Porter Cable Belt WGB, 68; Gremby Int.

GRINDERS, SURFACE

Abrasive #1 1/2 Wet Hand Feed, #33, #34, Vert
Blanchard #18, 42" Mag. Chuck, #11-18" chuck
Brown & Sharpe #2, #3 Hyd. 6x24"
G. & L. #18, 6x18" Hand Feed, #25, #35 Hyd.
Hanchett 300 series, 13x48" with chuck
Mottson 14x18x48 with chuck; Hammond #2
Norton 6x18" Hyd., Atlantic 6x18" Power Feed
Reid #2A P.F. MIB., #2C Pope Spd.
Pratt & Whitney 12x36" Vert.
Thompson Hyd. 6x10x18", 6x12x18"

LATHES

Hardinge Precision 9", 1" Collet Cap., Rivett
Hendey G.H. 18x30", Rel. Att., Bradford 18"x9"
LeBlond Regal 15x30", 21x60", 10"x3 1/2", 19x48"
LeBlond Heavy Duty 18x30"
Lodge & Shipley 16x28" T.A., Collets, etc.



High Speed Vertical Mill

Monarch 16"x20" EE, 16x78 G.H., 12x30"
Seaboard 12"x4" G.H.
Sheldon 11"x24", Logan 10"x30"
South Bend 13x38", 14 1/2"x8", 10x4, 8x3, 8x3 1/2

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Brown & Sharpe #000, 12, 21, #2A Univ.
Burke #4 Plain & Univ. Vert. Hd.
Cincinnati 2MH Univ.—1-12, 1-18, 2-18 Mfg.
Kent Owens #1V; U.S. Hand Mills
Milwaukee #2HL, 2H Univ., #2HL, 2H Plain
Nilebs Hand, Vert. Hd.; U. S. Multimill
Sundstrand 80 Rigidmill; Whitney Hand Mills
Van Norman #12, 22L, 30; U. S. 1 & 2 sp.

MILLS, VERTICAL

Bridgeport Vert.
Brown & Sharpe #2
Cincinnati #4
Gorton #3D, 9J Plain, 8 1/2 D Duplicator
Sig Jig Borer #MP-5
Index, Jackson, Vernon
Milwaukee 3H, 5H
Morey #12M Profiler 2 sp., P. & W. 12B
P. & W. 1 1/2 B Jig Borer, Moore Jig Grinder

PRESSES

Bliss 675, 650, 645B Hi-Production Presses
Bliss #8 Dbl. Crank, Bed 42"x100"
Bliss 19, 20, 21 OBI, 58, 62, 62A 162 OB.
Bliss #4 1/2 Double Action, Roll Feeds
Henry & Wright 75 Ton Dieing, 60, 35 Ton

This is but a partial listing. Write for free Catalog. Inquiries invited.

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HYDRAULIC EQUIPMENT

Cap.	Manufacturer	Platen	Stroke	Opening
500 Ton	Lake Erie	35x38"	36"	60"
600	Bald. S'thw'h	78x38"	22"	50"
500 D.A.	H.P.M.	58x38"	24"	30"
1000	French Oil	53x42"	20"	36"
300	Brand New Watson Stillman Hobbing Press	84x44"	12"	42"
375 D.A.	Elmes (60 Cushion)	84x44"	12"	42"
350	Verson	40x40	36"	72"
50	Dennison	22x20	18	25
150	Southark	84x30	30	2' to 4'

UP MOVING RAM PRESSES

50 & 100 Ton Stokes Molding Presses & Pumps
300 Ton Dunning & Boschert Molding Press
500, 800 Ton Waterbury-Farrel 3 & 4 Rod Presses, 6 & 9 1/2 strokes
300 Ton Watson Stillman Press, 24x20" Platens
400 & 500 Ton Shaft Straighteners—Self Contained

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Air Hydraulic Presses—Arber Presses #6C
Fames—Band Saws Kalamazoo—Drill Presses all sizes—Grinder Surfaces, Abrasive #1 1/2—Hydraulic Press Northern 20 Ton—Injection Molders, 1 ounce—Power Presses, OBI, 4 1/2, 5, 7 1/2, 10, 12, 18, 30 ton—Shaper, 7" Ames, 8" Shaperite—Shaper, Sheldon 12"—Shears, Foot 22" to 8", 18 & 18 ga.—Shears, Power, 3"x18 gauge to 10"x10 ga.—Welders, Arc, Seam, Spot all sizes—Vert. Milling Attack, Halse, H.S.—Motors, Grinders, Buffers, all sizes

Thomas 80 Ton O.B.I. #7A, Z & H 30 Ton Toledo 400 Ton Knuckle Joint V. & O. #258 O.B.I., #102 O.B.I. Reducing

TURRET LATHES

Acme #6W Bar & Chuck, Acme 6W Fox Gardons & Oliver #3, 1 1/2" cap., #5, #2 Brown & Sharpe #1, 2F, Hand Gisholt #4, 5 Bar & Chuck, 1L, Foster #3B Hardinge ESM Second Operation J. & L. 8A—Well Tooled Morey #3, 1 1/2" cap. Oster #801 Rapidturn, well tooled Warner & Swasey #3, 4, 4A Universal

MISCELLANEOUS

Band Saw; Tanowitz #30M, DeAll Metalmaster Bending Roll; Buffalo #8, 1 1/2 W.R. Excelsior #14 Haskins; Marvel #48, SA Automatic #6 Hammer; Niles Bement Pond 2500 lbs. steam Hardness Tester; Clark, Rockwell 4JR Honer; Micromatic #H-1, Sunnen Riveters; HI Speed Injection Molder; Reed-Prentiss #10DB, 8 ounce Keyseator; Davis, Baker, M & M LaPointe #3L Horiz. Hydr. Press Brake; Cine. 90-10 New, Chicago #335, 235 Router; Onsrud #W240, 55 Saws; Wells, Catekill, Peerless Shaper; Gould & Eberhardt 32" Univ. Industrial, Latest Shaper's 8" Shaperite, 7" Atlas Shear; Cine. 2510, 10"x1 1/2" New; Pexto 6"x14 Ga. Shear Throatless; #130 Lenox, Speed Lathes; Schauer Tappers; Bakewell #1, Haskins #2C, 3C Thread Roller; Waterbury-Farrel #30 with Dies Welders; Seann & Spot; Thompson, Taylor-Winfield, Selaky

BORING MILL, Vert. 14" Niles, 2 Hds., M.D.
BRAKE, Press 36" x 5 1/2", 60" throat, Late
BULLDOZER, No. 4 Williams & White
HAMMERS, Pneumatic Nos. 48 & 68 Nazel
HAMMERS, Steam Drop, 2,000# Chambersburg
MILLER, Vert. No. 4 Kempsmith, table 18" x 76"
PLANNER, O.S. 72" x 72" x 16" Cine. Hypro, '43
PRESS, Hyd., 250-Ton Chambersburg, 30" x 36"
PRESS, No. 59 Toledo Str. 12", Bed 30" x 30"
PRESS, No. 59 1/2 Toledo Str. 14", Bed 36" x 37"
ROLL, Bending, 10" x 1" & 12" x 1 1/2" Wickes
SHEAR, Plate, 132" x 1 1/2" Morgan, 26" Throat
SHEAR, Plate, S-6156 Pexto, 156" x 3 1/2"
STRAIGHTENER, 17-Roll McKay, 60" x 4 1/4"
STRAIGHTENER, 48" American, 13-Rolls, 2 1/4"
UPSETTER, 2" Acme, Steel Frame

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8" x 14 ga. Pexto. (1948)
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36" x 25' centers Niles Bement Pond Lathe
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8" x 48" Jones & Lamson Thread Grinder
#2M Cincinnati Plain Miller
#21 and #22 B&S Production Millers
#32 Lucas Horizontal Boring Mill

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2 1/2" Acme Gridley model RA6
2" x 18" Cleveland model B
17" Conomatic 8 spindle
1 1/2" New Britain model 61
1 1/16" Cleveland "M" 4 spindle
7/8" & 1 1/4" Cone 4 spindle
1/2" No. OG Brown & Sharpe
9/16" Acme Gridley model RA
1" Economy bolt shaver

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3 ton American vertical
30 ton (48" str.) American vert.
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9 ton American horiz. surface
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24" x 34" Springfield surface
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3" No. 31 Lucas
3" No. 3A Universal
3 1/2" No. 32 Lucas
3 1/2" No. 5A DeRance
5" Jones, planer table type
24" & 42" Bullard vertical
52" King vertical
100" Niles Bement Pond vert.

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Nos. 2AS, 2, 3B & 4B Milwaukee
No. 3 Cincinnati universal
No. 2M & 2 Cincinnati vertical
No. 2H & 3H K. & T. vertical
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Vernon jig borer
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16 x 36 Lodge & Shipley Geared
Head Lathe, 12 spindle speeds—
16 to 485 RPM—Self contained—
A.C. Motor Drive
16 x 108 Sebastian Geared Head
Engine Lathe, 8 spindle speeds—
14 to 350 RPM, Grinding Atch.,
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24 x 96 LeBlond Engine Lathe, Face
Tapering, Quick Change Atch.
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Head Motorized Lathe—Serial
#29436
18" x 8" LeBlond Engine Lathe
18" Lodge & Shipley Geared Head
Lathe—Motorized
16" x 10" LeBlond Engine Lathe,
Quick Change
14" x 8" Champion Lathe
19" x 8" LeBlond Quick Change En-
gine Lathe
32" Greaves-Klusmann Engine Lathe
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8-12" x 6" LeBlond Engine Lathes
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16" Hamilton Lathe
6" x 8" LeBlond Engine Lathe,
Quick Change

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Grinder, Universal Work Head,
Head & Tail Stock, Cylindrical
grinder atch., self contained,
A.C. Motor Drive
BROWN & SHARPE No. 14 Cyl-
indrical Grinder, 18 x 5 x 2
HEALD No. 70 Internal Grinder
MORSE No. 2 Cylindrical Grinder
SELLERS Drill Grinder—Model
4G, Serial #02-3000
Carboly Chip Breaker Grinder—
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10" Carboly Tool Grinder with
Dust Collector, Serial #3631
Carboly Scraper Grinder
1 HP Pedestal CINCINNATI D.E.
Grinder
No. 6 Gardner Double Disc Grind-
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2 HP Hisey D.E. Grinder

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Sunnen Precision Hone—Model
MA, Motorized, Serial #2396
WAYNE Pump Air Compressor—
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—5 HP Motor
H & A No. 5 Motorized Cross Cut
10" Swing Saw—1 1/2 HP Motor
6 x 6 Peerless Universal Motor Cut
Off Saw
WHITTON Centering Machine,
Motorized
DELTA Belt Sander, Motorized
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Press
SMITH Welding Outfit
4 1/2 Type and Bessing Machine
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Serial #272540
No. 4 Crescent Saw Table
8" Water Wash Spray, Portable
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Motors, 1 to 50 HP, A.C.
Automatic Transformers and Teasers
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ing Oven
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ator: 350 volt D.C., 3 Amps,
Generator: 220 Volt 60 cycle—
3 phase Motor
Wesche Generating Set—125 Volts,
D.C.; 92 Amps with 20 HP.;
220 Volts 60 cycle—3
Motor

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B & S Gear Tooth Vernier—2-20
Pitch
B & S Gear Tooth Vernier—10"
B & S 25" Vernier
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Reamers, Drills, Arbors, Mandrels,
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Tool Holders, Chucks, Wrenches,
Milling Vises, Dividing Heads, In-
dex Centers, Rotary Circular Mill-
ing Table, Etc.

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CINCINNATI #3 Plain Mill Dial
Type with built in speed calcu-
lator, Rapid Power Traverse in
all directions, all power quick
change, feeds, and speeds, spindle
speed 18 to 1300 RPM. Self con-
tained, A.C., Motor Drive, Serial
#4A-3P-K-38
LEES-BRADNER Thread Mill,
Single spindle, Model NT—12 x
54, Rapid Power Traverse, in
either direction with 2 speed, Mo-
tor Driven, cutter Head, Coolant
Pump and self contained, A.C.
Motor, Serial #NT767
No. 2 CINCINNATI Universal
Milling Machine, Serial No.
A-1080-E
BROWN & SHARPE No. 3 Uni-
versal Mill
BROWN & SHARPE No. 13B Face
Mill
U.S. Hand Mill

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32" SMITH & MILLS SHAPER,
Motorized, A.C.
20" SPECIAL SMITH & MILLS
SHAPER, Motorized
25" SMITH & MILLS SHAPER
18" SMITH & MILLS SHAPER

GEAR HOBBERS & CUTTERS

FELLOWS Geared Shaper, Motor-
ized—Model 64S, Gear 3" Face
Width with Power Rapid Tra-
verse to Table with take up 35"
A.D. Self contained 4 speeds,
A.C. Motor Drive
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Geared Hobber—Serial 1058
24" BECKER-BRANDARD Bevel
Gear Cutter
No. 3-25 B & S Automatic Gear
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Prefector Boring Bar, Serial No.
2012P-38
No. 777 Van Norman Prefector Bor-
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Lathe
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Lathe

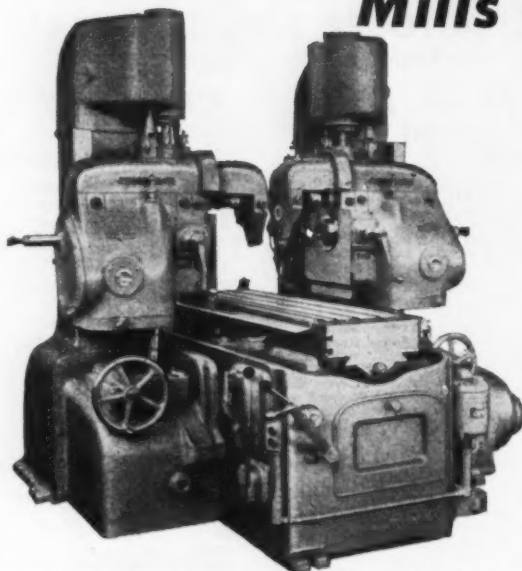
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3-36 CINCINNATI DUPLEX HYDRAMATIC MILL
With Tracer Control
Table working surface 12" x 50"
Maximum distance between spindles 18-7/16"
#50 Standard taper
Spindle speeds—24, 50 to 370 rpm

- 2—24 Cincinnati Rise and Fall
- 24" Cincinnati Duplex
- 3—24 Cincinnati Duplex Rise and Fall
- 3—36 Cincinnati Duplex
- 1A Davis & Thompson Roto-matic
- No. 3 Sundstrand Rigid Mill
- 12" Pratt and Whitney
- No. 31 De Vlieg Super Mill
- No. 5-48 Cincinnati Hydromatic
- 48" Cincinnati Duplex
- 45-48 Cincinnati Duplex Hydromatic
- 56-72 Cincinnati Duplex Hydromatic
- 56-72 Cincinnati Duplex Hydromatic
(extra width)
- 36" Series Cincinnati Horizontal Hydrotel

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ALL LATE TYPE! PRICES REDUCED!

- 24" x 160" centers Sidney Lathe, 1942
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- 17"/25" x 6" LeBlond Gap Lathe, 1942
- 16" x 54" American Pacemaker Lathe, 1942
- 5" x 11" American Radial Drill, 1942
- 3—#26 Kempsmith Universal Millers, 1944
- #2H Milwaukee Vertical Miller, 1942
- 36" Rogers Vertical Turret Lathe, 1942
- #1—18 Cincinnati Prod. Miller, 1942
- #3—24 Cincinnati Hydra. Miller, 1941
- 16" Cincinnati Universal Shaper, 1942
- #5 Gisholt Turret Lathe, 1943
- #2 Bardons & Oliver elec. Turret Lathe, 1939
- 14" x 36" Landis Universal Grinder, 1942
- 12" x 36" Norton Universal Grinder, 1941
- 6" x 30" Norton Plain Grinder, 1939
- #2 Brown & Sharpe Surface Grinders, 1942
- 5" Sellers horiz. boring mill, 1943

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2—"Rockwell" rotary annealing furnaces, type 707, gas-fired, complete with "Metalwash" pre-washer and pickler.

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50,000 ft. NEW two conductor, 1/0, rubber covered copper cable, 133 strand, 600 Volt.

25,000 ft. 3/4" Galvanized Steel guy-wire, left-lay, .120 gauge, 3 strands of 7 wires each. NEW.

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NORTON ROLL GRINDER

50" x 28" M.D.
Niles-Bement-Pond 2500 Lb.
Single Frame Steam Hammer

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Wa. 4-8233

SIMMONS BEST BUYS

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24" Bullard vertical turret lathe, spiral drive, 4-jaw chuck.
36" Bullard New Era vertical turret lathe, 3-jaw chuck.
36" Bullard vertical turret lathe, spiral drive, 3-jaw chuck.
36" Bullard vertical turret lathe, spiral drive, 4-jaw chuck.
42" Bullard vertical turret lathe, spiral drive, 3-jaw chuck.
42" Bullard vertical turret lathe, spiral drive, 4-jaw chuck.
54" Bullard vertical turret lathe, spiral drive, 4-jaw chuck.
36—44" Niles vertical turret lathe, 4 chuck jaws.
42" King vertical boring mill, two swivel heads.
48" Colburn vertical boring mill, two swivel heads.
52" Gisholt vertical boring mill, two swivel heads.
54" Colburn vertical boring mill, two swivel heads.

BORING MILLS (horizontal)

2 1/2" spindle Cleveland, table 20" x 42".
3" spindle, #31 Lucas 'Precision' table, 24" x 48".
3 1/2" spindle Rochester, table 30" x 52", extra long bed.
4" spindle Lucas, table 30" x 48", face plate.
4" spindle, #42 Lucas, table 30" x 60".
4 1/2" spindle Defiance precision, table 36" x 64".
4 1/2" spindle Niles 'Duplex Control', table 33" x 60".
5" spindle Niles 'Timesaver' table 60" x 96", extra height and length.

5" spindle Niles 'Timesaver', table 60" x 96".

4" spindle Detrick & Harvey floor type, 116" column travel.

PLANERS (standard)

36" x 36" x 8' Gray, two heads on rail, AC or DC motor.
36" x 36" x 10' Cincinnati, two heads on rail, AC or DC motor.
36" x 36" x 14' Gray, 4 heads, 3 speed self-contained, M.D.
48" x 48" x 12' Detrick & Harvey ex. hvy., 2 rail and 1 side hd.
48" x 48" x 18' Detrick & Harvey ex. hvy., 2 rail and 1 side hd.
48" x 48" x 24' Niles, two rail heads and one side head.
48" x 48" x 32' Gray, four heads.
60" x 60" x 16' Betts (Consolidated) Heavy, forced feed lub., 4 hds.
60" x 60" x 18' Niles heavy, 2 rail hds., 1 side head, 230 V. DC.

PLANERS (openside)

36" x 36" x 10' Cleveland, 2 rail hds., 1 side head, AC or DC.
48" x 42" x 16' Detrick & Harvey, 1 rail hd., 1 side hd., AC or DC.
60" x 60" x 18' Detrick & Harvey, 2 rail and 1 side head.
72" x 72" x 24' Detrick & Harvey, 2 rail and 1 side head.
60" Niles rotary planer or end mill.
30" Loudon plate planer and beveler.
#3 Niles plate planer, 230 volt DC.

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No. 9, 13 LeBlond Multi-Cut, m.d.
3 1/2 x 36", 5 1/2 x 80", 4 x 60", 8 x 84" LoSwing, m.d.
8 x 132" LoSwing, m.d., latest
8 x 120" Sundstrand, s.p.d.
11 x 18" LeBlond Rapid Production, m.d.
12 x 18" centers Monarch Model 5T, m.d.
13" x 24" LeBlond Rapid Production, Timken, latest
13" x 24" Coulter Automatic Threading, m.d.
13 x 36" LeBlond Rapid Production, Timken, latest
13 x 48" Coulter Automatic Threading, m.d.
16" x 26" LeBlond Rapid Production, m.d.
16" x 26" bed Lodge & Shipley Simplified Mfg., cone, motorized
17" x 26" LeBlond Automobile Mfg., cone
17" x 26" LeBlond Rapid Production, m.d.
17" x 26" LeBlond Automatic Mfg., m.d.
20" x 26" LeBlond Mfg., m.d.
21" x 26" LeBlond Turret Lathe, cone
Niles-Bement-Pond Quartering Machine, m.d., new
Schauer Type NA 2B Speed Lathe, m.d.

ENGINE LATHES

10 x 20" centers Monarch EE Geared Head, m.d., latest
10 x 24" Logan, cone, motorized
12 x 30" centers American Geared Head, m.d., late
12 x 30" centers Pratt & Whitney Model B, m.d., taper
12 x 48" centers Pratt & Whitney Model B, m.d.
14 x 30" centers Lodge & Shipley Selec. Head, m.d., latest
14 x 54" centers Lodge & Shipley, m.d., latest
14" x 26" American Geared Head, m.d.
14" x 26" bed Hendey Geared Head, m.d., taper
14" x 26" Lodge & Shipley Geared Head, m.d.
14" x 26" Pratt & Whitney, cone
14" x 26" LeBlond, cone
14" x 26" Sidney Geared Head, m.d.
14" x 26" Springfield Geared Head, m.d., taper
14" x 26" Prentice, m.d., taper
14" x 26" Pratt & Whitney, cone
14" x 100" centers LeBlond, m.d. in leg, latest
15" x 26" LeBlond Geared Head, m.d.
16" x 30" Reed-Prentice, m.d., latest
16" x 36" Pratt & Whitney Geared Head, m.d.
16" x 36" centers Pratt & Whitney, cone, motorized

16" x 26" Bradford, cone
16" x 26" Hendey Geared Head, m.d.
16" x 26" Hendey Yoke Head, taper
16" x 26" Lodge & Shipley Selec. Head, m.d.
16" x 26" bed Monarch Geared Head, m.d.
16" x 10" Hendey Yoke Head, taper
16" x 14" American Geared Head, m.d.
17" x 26" LeBlond Geared Head, m.d.
18" x 26" centers Lodge & Shipley, m.d., taper
18" x 52" centers American Geared Head, m.d., taper
18" x 25" LeBlond Geared Head, m.d.
18" x 26" bed Lodge & Shipley, cone, motorized
18" x 26" Monarch Geared Head, m.d.
18" x 26" Hendey Geared Head, m.d., taper
18" x 26" American Geared Head, m.d.
18" x 26" Champion, cone
18" x 26" Hendey Geared Head, m.d.
18" x 26" Lodge & Shipley Selec. Head, m.d.
18" x 26" Lodge & Shipley, cone
18" x 26" Whitcomb-Bisadell, Geared Head
18" x 10" Cincinnati, cone
18" x 10" Lodge & Shipley Selec. Head, m.d.
19" x 26" bed LeBlond Geared Head, m.d., taper
19" x 10" LeBlond Geared Head, m.d.
20" x 26" American Geared Head, m.d., taper
20" x 26" Cisco, cone
20" x 10" bed (66" centers) Monarch Geared Head, m.d., taper
20" x 10" Sidney Geared Head, m.d.
20" x 11" LeBlond Geared Head, m.d., taper
20" x 12" American Geared Head, m.d.
21" x 12" Bradford, cone
22" x 70" centers Greaves-Klusman Geared Head, m.d., taper
22" x 26" Lodge & Shipley, cone
22" x 12" LeBlond Geared Head, m.d., taper
24" x 10" Hendey Geared Head, m.d.
24" x 10" American, cone
24" x 10" Greaves-Klusman Geared Head, m.d., taper
24" x 10" Lodge & Shipley, cone
24" x 12" Bridgeford Geared Head, m.d., taper
24" x 12" LeBlond, cone
24" x 12" Monarch Geared Head, m.d., taper
24" x 40" bed American Geared Head, m.d.
25" x 10" LeBlond, cone
26" x 26" Bridgeford Geared Head, m.d.
26" x 12" Bridgeford Geared Head, m.d., taper

30" x 12" x 6" Niles-Bement-Pond, m.d., taper
30" x 13" x 6" Niles-Bement-Pond, m.d.
30" raised to swing 42" x 21" x 6" American Geared Head, m.d., taper, Timken
32" x 12" Lehmann Hydratrol Geared Head, m.d., taper, latest
26" x 36" x 6" Niles Heavy Duty, m.d., latest, 2 carriages
50" x 204" centers LeBlond Geared Head, m.d., taper, latest

MANUFACTURING TYPE MILLING MACHINES

No. 66 Sundstrand Hydraulic Rigidmill, m.d., latest
No. 68 Cincinnati Model EA, m.d., latest
No. 12 Brown & Sharpe, m.d.
No. 1-12 Cincinnati, m.d., latest
No. 1-18 Cincinnati, m.d., latest
No. 2 Sundstrand Electromill, m.d., latest
No. 2-18 Cincinnati, m.d., latest
No. 2-18 Cincinnati, m.d., with rise and fall, latest
No. 2-24 Cincinnati, m.d., latest
No. 2-24 Cincinnati, m.d., with rise and fall, latest
No. 4-48 Cincinnati Plain Hydromatic, m.d., latest
No. 4-48 Cincinnati Duplex Hydromatic, m.d., latest
No. 34-36 Cincinnati Duplex Hydromatic, with tracer control, latest
No. 34-36 Cincinnati Plain Hydromatic, m.d., with tracer control, latest
No. 56-72 Cincinnati Duplex Hydromatic, m.d., latest
No. 56-90 Cincinnati Duplex Hydromatic, m.d., latest
Type P Onio Mfg., m.d.
Sundstrand Rigidmill, m.d.
4" Pratt & Whitney Spline, m.d.
No. 33 Kempsmith Mfg., s.p.d.
18" x 24" Cincinnati Plain Automatic, m.d.
24" x 48" Cincinnati Duplex Automatic, m.d.
30" x 36" x 12" Ingersoll Slab, 2 heads, m.d.
72" x 26" Ingersoll Single Horizontal Spindle Traveling Housing Milling Machine, m.d.

THREAD MILLING MACHINES

No. CT-36 Lees-Bradner, m.d., latest
No. CT-54 Lees-Bradner, m.d., latest
Hall Planetary, m.d.
4 1/2 x 12", 6 x 14", 6 x 18", 6 x 20", 6 x 30" Pratt & Whitney
10 x 24" Hanson Whitney, m.d., latest
10 x 48" Hanson Whitney, m.d.

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GIDDINGS & LEWIS #45, 5" Bar Table Type, latest
LUCAS #41, 3" bar, Table Type, "Precision", latest
NILES-BEMENT-POND 5", 8" bar, Floor type, M.D.
UNIVERSAL 3" bar, high speed, latest type

BORING MILLS—Vertical
BULLARD 8" 3 Spn. Multi-Au-Matic, Type J, latest
BULLARD 12" 6 Spn. Multi-Au-Matic, Type D, latest
BULLARD 16" 6 Spn. Multi-Au-Matic, Type D, latest
BULLARD 24" 36", 42" "Spiral Drive", latest Type
KING 62", 2 swivel heads, PRT, D.C., Motor Dr.
NILES 100", 2 swivel heads, PRT, D.C., Motor Dr.

DRILLS—Miscellaneous
AMERICAN 4' arm 11" col. "Hole Wizard", latest
LELAND & GIFFORD #2 LMS 6 spindle, latest
NATCO 4 AL 30 spindle, Multiple, latest Type
PRATT & WHITNEY 18x50" Deep Hole, latest

GEAR CUTTING EQUIPMENT
BARBER COLMAN Type A, S, #12 Hobber, latest
FELLOWS 61A, #61, #7, #7A, #72, #75, #77,
#7, #622, High Speed Gear Shapers, latest type
GLEASON #7" Bevel Gear Planer, Motor Drive
GOULD & EBERHARDT 12H, 12HS Hobber, latest
GOULD & EBERHARDT 96H, Hobber, with diff., m.d.
SYKES #1 1/4, 18" Cap., Herringbone Gear, M.D.

GRINDERS—Cyl.—Plain & Univ.
BROWN & SHARPE #1, 2, 3, 4, Universal, latest
BROWN & SHARPE #13, 4" Univ. Cut & Tool, latest
LANDIS 4x12, Type H Plain Hyd., latest
NORTON 6x18", 10x72", 14x36", Type C, Plain, latest
NORTON 6"x30", 10"x36", type C, Pl. Hyd., latest

GRINDERS—Miscellaneous
BARBER COLMAN #3, 4, hob sharpener, latest
CINCINNATI #2 Centerless "Filmatic", latest
HEALD 75A, 72A5 "Gagematic", Internal, latest
HEALD 75A, 72A5, 74, 70A Internal, latest
LANDIS #12 Centerless, Hydraulic, latest Type

GRINDERS—Surface
BLANCHARD #11, 16" chuck, latest Type
HANCHETT Series 300, 12"x48" Vert. Sp. Hy. latest
HEALD #22 Rotary, 12" chuck, latest type
HEALD #25A—Rotary—16" and 30" chuck, hyd., latest
THOMPSON 12x12x24 Type B Hyd., latest Type

LATHES—Engine & Mfg.
AMERICAN 36"x360" centers, 2 carriages, motor dr.
MEDART #6LSF Bar Turner, latest Type
MONARCH 10"x20" centers, Model EE Timken, latest
MONARCH 12"x30" Centers, 12x54" Centers, Model
CK, Timken Bearing, latest Type
MONARCH 22"x50" centers, 3 carriages, Timken
Bearing, Model CM, motor drive

LATHES—Turret
NILES 30x50" Boring, Timken, latest Type
PRATT & WHITNEY 14"x54" Centers, 16"x30"
Centers, Model C, Timken Bearing, latest Type

LATHES—Turret
BARDONS & OLIVER #5, #7, Timken, latest Type
FOSTER #4FU "Fastematic", Timken, latest
GISHOLT #11, #21, #31, Universal, Timken, latest
GISHOLT #2, #4, Univ. TIMKEN, latest Type
JONES & LAMSON #3, #5 Univ., Timken, latest
LIBBEY "International" 1-H5, Univ., Timken, latest
MOREY No. 20, No. 3, No. 4, Timken Bearing, latest
WARNER & SWASEY #2A Univ. Timken, latest
WARNER & SWASEY #4 Universal, Timken, Bar
and Chucking (New 1947)

MILLING MACHINES—Plain
BROWN & SHARPE 2B, 3B, Timken, latest Type
CINCINNATI 4-36, 2-18 Hydromatic, Simplic, latest
KEARNEY & TRECKER 1318, 1404, latest type
KEARNEY & TRECKER 2H, 3H, 4H, Timken, latest

MILLING MACHINES—Thread
LEES BRADNER 12"x54", Model HT, latest Type
MOREY 12"x30" and 60" centers, latest Type
PRATT & WHITNEY 6x68", Model C, latest Type

MILLING MACHINES—Universal
BROWN & SHARPE 2A, 3A, Timken, latest Type
KEARNEY & TRECKER 2H, Timken, latest Type
VAN NORMAN #26, #36, Timken, latest Type

MILLING MACHINES—Vertical
BROWN & SHARPE #2B Timken, latest Type
CINCINNATI #2, Dial Type, Timken, latest type
GORTON #84D, 9J, high speed, latest
KEARNEY & TRECKER #3H, Timken, latest

PLANERS
BETTS (CONSOLIDATED) 84"x92"x16", 4 heads,
Box Table, Power Rapid Traverse, D.C. M.D.
BETTS (CONSOLIDATED) 108"x84"x50", 4 heads,
Box Table, Power Rapid Traverse, D.C. M.D.
NILES "Time Saver" 48"x42"x14", 3 heads, Rapid
Traverse, A.C. vari-voltage drive, latest
NILES "Time Saver" 48"x48"x12", 3 heads, Rapid
Traverse, D.C., reversing motor drive

SCREW MACHINES—Automatic
CONOMATIC 2 1/2"—6 spindle, latest Type
GOSS & DeLEEUW 6"x6" Auto. Chuck, latest
GOSS & DeLEEUW 8" auto. Chuck, 5 spin., latest

MISCELLANEOUS
BARNES #172, 306H, 307, 307B Vertical Hone,
Hydraulic, Self-Oiling, latest Type
CINCINNATI 1-30, 3-50, Duplex Vert. Surface
Broach, Double ram, Model ER Hyd., latest Type
CINCINNATI Series 300, 1/4"x8" Press Brake, MD
HENRY & WRIGHT 50 ton Dieing Press, M.D.
LAKE ERIE 500 ton Vertical Hydraulic Press, latest
MICHIGAN 1708, 1712 Universal Reverser, latest
VERSON #206, 10 gauge x 90" cap, Press Brake, latest
WYSONG & MILES 14 gauge x 6' Power Shear, latest

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Bullard 24" New Era, Vertical
Bullard, 54" Maxi Mill
Lucas #31, 3" bar, Horiz.
Cincinnati Gilbert 3 1/2" bar, Horiz.
P & H Floor Type, Horiz, 4" spindle

DRILL PRESSES

Leland Gifford 24" Single Spindle
Coburn #4, Mfg. Type Single Spindle

RADIAL DRILLS

American 3 1/2" Triple Purpose
American 5" Triple Purpose
Carifton 5", Ball Bearing
Fosdick 5' 14" col.

GRINDERS

Cincinnati #2 Centerless, Filmatic
Brown & Sharpe #13, Univ. & tool
Landis 4x12 Type H, Plain Cylindrical
Landis 10x24, Type C, Hydraulic
Heald 70A Internal, (1941)
Excella 31L, Precision Thread
Norton 6x18, Surface

LATHES

Lodge & Shipley 14" x 30" centers, Late model
American Pacemaker 16" x 78" centers (1945)
Lodge & Shipley 18" x 8' bed, Selective Geared
Head
Sebastian Streamliner 20" x 8' centers
American 24" x 10' bed, G. H.
American 24" x 14' bed, 8 speed, G. H.
Sidney 24" x 168" centers, equal to now
Niles Timesaver 30" x 10' centers

MISCELLANEOUS

Warner & Swasey #1A, Saddle type, Late model
Gisholt #3, Ram type, Univ.
Cincinnati 0-8 Vert. Miller
Lodge & Davis 24" x 24" x 6', Self Contained

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Press Bolster 40x36"

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Single and Double End Punches, wide variety
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 1—Flat, 50-Ton, 41'6"
 5—Flat, 40-Ton, 60-Ft., S/U
 1—Flat, 50-Ton, 43-Ft., S/U
 11—Side Dump, 20-Yd., Automatic Air, Lift Doors
 1—End Dump, 10-Yd., All-Steel, Lift Door
 1—All-Steel Mail, 40'9"
 14—Passenger, 64'6", All-Steel
 20—Hopper, LIKE NEW, Twin, All-Steel, 50-Ton, Built 1937, Cubic Capacity 2145 Cu. Ft.
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 14—Ore Hopper, All-Steel, 50-Ton
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3 phase—60 cycle

SLIP RING

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1	1000	Whse.	CW	2300	720
2	700	Whse.	CW	2200	900
1	500	G.E.	IM	2200	450
1	500	G.E.	IP	550	505
3	450	G.E.	IM	440	506
1	400	G.E.	IM	2200	252
3	350	Whse.	CW	2200	900
1	350	G.E.	MT-442Y	2200/4000	253
1	300	Al. Ch.		2300	505
1	250	G.E.	MT-424Y	4000	257
1	250	G.E.	MT-559B	2200	1800
1	135	G.E.	IM	2300	700
2	100	G.E.	IM	2200	435

SQUIRREL CAGE

1	250	G.E.	KT-559	440	1750
1	200	G.E.	IK	550	885
4	200	G.E.	KT-557	440	1800
1	150/50	Whse.	C8	440 679/343	
1	125	G.E.	KF-632B-Z	440/2200	3385
1	125	Whse.	MS	440	485
1	125 (NEW)	G.E.	KF-TEFC	440	1190
2	100	G.E.	KT-543	220/440	1750
1	100	G.E.	IK	440	575

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2	3500	G.E.	TS	2300	257
1	2100	G.E.	ATI	4600	514
2	2000	Whse.		2300	120
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1	1000	Whse.	Mill	2300	189.5
1	900	Al. Ch.		2200	150
1	600	Whse.		440	360
2	500	G.E.	TS-9832	4160	600
2	350	G.E.	TS	2200	150
1	320	G.E.	ATI	2300	600
1	300	G.E.	ATI	440	720

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- 12" Gleason Straight Bevel Gear Generator. 1941.
- 45" x 192" Axelson Engine Lathe. 1942.
- 28" x 276" Bertram Engine Lathe. 1942.
- No. 3A Warner & Swasey Universal Turret Lathe. 1943.
- No. 3B P&W Univ. Die Sinker. 1943.
- No. 40-5½ Minster Straight Side Press. 1942.



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Qu.	Tons	Make	Span	Current
1	25/5	Whiting	75'0"	230-VDC
1	20	P & H	72'0"	230-VDC
1	10	P & H	72'0"	230-VDC
1	10	Whiting	55'2"	230-VDC
1	10	Alliance	47'0"	230-VDC
1	10	P & H	46'8"	230-VDC
1	10	Shaw-Box	40'0"	440-VAC
1	5	Vails	40'0"	440-VAC
1	5	Whiting	39'9"	230-VDC
3	5	Shepard-Niles	27'9"	230-VDC
3	5	Shepard-Niles	27'3"	230-VDC
3	3	Shaw-Box	21'9"	440-VAC

SQUIRREL CAGE MOTORS

Qu.	H.P.	Make	Type	Volts	RPM
1	400	G.E.	KT-412	2300	450
1	300	Al. Ch.	AR	440	500
1	250	Whase.	CS	2200	1160
1	200	Al. Ch.	AR	220/440	580
1	150	El. Mch.	IC	220	1200
1	150	Whase.	CS-772	2200	1170
1	150	G.E.	L-K	440	720
1	150	Cr. Wb.		440	800
1	125	Whase.	C.S.-761	440	1750
1	125	Whase.	C.S.-772	2200	1170
2	125	Al. Ch.	AR	440	435
3	100	Whase.	CS-663	440	1750
1	100	Al. Ch.	AR-226	2200	1160
3	100	F.M.	HS-301C	440	880
2	100	G.E.	KT-556	2200	865
1	100	Al. Ch.	AR	550	690
1	100	F.M.	H-241-B	440	433
1	75	Al. Ch.	AR	2200	1765
1	75	Whase.	CS	440	1750
1	75	G.E.	KF-543	440	1200
1	75	Burke	EM-10	550	720
1	50	Ideal	AT-445	440	1750
1	50	Al. Ch.	AR-226D	440	1150
3	50	Whase.	CS	440	690

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Qu.	H.P.	Make	Type	Volts	RPM
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1**	1200	Whase.	C.W.	2200	590
1	800	G.E.	MT-12	2200/6600	600
1**	600	G.E.	MT-412-Y	2200	719

Qu.	H.P.	Make	Type	Volts	RPM
1	500	G.E.	I.M.	2300	600
1	500	G.E.	J.M.	550	600
1	500	Whase.	C.W.	440	600
1	400	G.E.	I.M.	2300	875
1**	400	Al. Ch.	ANY	2300	514
1	400	G.E.	MT-422	2300	360
1	300	G.E.	I.M.	2200	1200
1	300	Al. Ch.	ANY	2300	505
1	275	Whase.	H.F.	440	345
1***	250	G.E.	M.T.	2300	680
1	250	Whase.	C.W.-1106	2300	600
1	200	Al. Ch.	ARY	2200	585
1	160	Whase.	C.W.	220/440	690
1	150	G.E.	I.M.	2200	1750
1	150	G.E.	I.M.	440	1180
1	125	Al. Ch.	ARY	440	900
1	75	G.E.	I.M.	220/440	695
2	50	G.E.	MT-536	2200	1150

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**—MILL Type 2-pedestal bearing.

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1	750	Al. Ch.	720	250	440	
1	750	G.E.	514	275/300	4160/2300	
1	600	G.E.	720	300	2300/440	
1	400	Whase.	710	350	2200	
1	300	G.E.	720	250	2200/440	
1	200	Burke	720	250	2200/440	
1	100	Reliance	1200	275	440	
1	100	G.E.	1200	250	2300/440	
1	100	Cr. Wb.	720	250	2300/440	
2	94	G.E.	1200	62.5	440/220	
1	75	Al. Ch.	900	250	2300	
1	75	Whase.	1200	120	440/220	
1	50	Lo. Al.	1200	120/240	2200/440	
2	35	G.E.	1800	125	440/220	
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COST ...**

... OF STRAIGHT AND CONTOUR
TURNING AND BORING OPERATIONS

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**New Britain
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**FAST, ACCURATE,
POSITIVE, SIMPLE**

Generate straight bores, outside diameters and an unlimited number of different contours. Adaptable to both roughing and extreme precision finishing of pieces, limited only by the minimum diameter of the boring bar, and on large work by the table size. Operate at top spindle speed of 7500 R.P.M. Two speed drive makes it possible to change spindle speeds for different portions of the same job, to provide for differences in diameters and interrupted cuts.

Available in two sizes of two different models, one for straight boring and turning, the other equipped with contour table. One or more spindles may be mounted, and raised, lowered or spaced as required. Vertical cross slides optional for facing or other cross working operations.

BETTER METHOD Prevents fluctuation in size and feed caused by temperature variations.

BETTER METHOD Only one single point tool to buy, set, adjust and grind.

BETTER METHOD Holds .0001 tolerances by reducing tool strain and work torque.

BETTER METHOD Positive cam actuation reduces inspection to a single dimension.

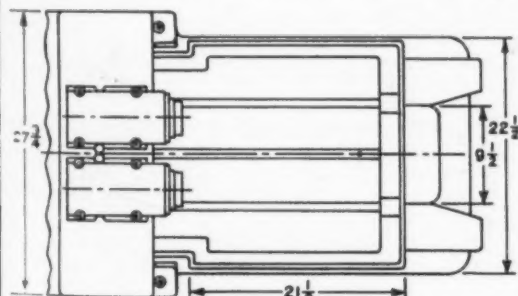
BETTER METHOD Rapid traverse to within a few thousandths of work, quick withdrawal, cut idle time.

BETTER METHOD Optional automatic loading enables one operator to run more than one machine.

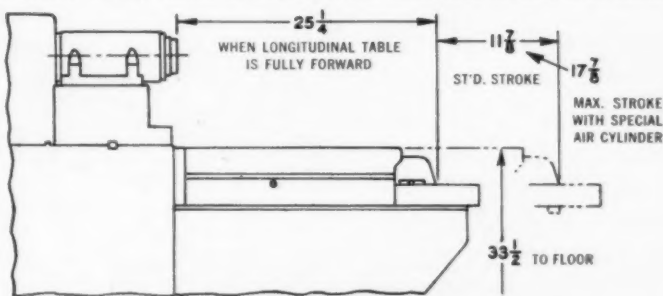
BETTER METHOD Choice of tool or work rotating set-up makes tooling easy and flexible.

LARGE SIZE TABLE TAKES BIG WORK

Besides doing small work, these machines are capable of mounting large pieces on the tables as shown in the following tooling area sketches



TOP VIEW OF TOOLING AREA



SIDE VIEW OF TOOLING AREA

The work capacity and flexibility of New Britain boring machines open up unlimited possibilities for finding the better production methods on which successful competition stands or falls. Write for full details, and the brochure, "IT CAN BE DONE" which describes actual cost histories on specific jobs.

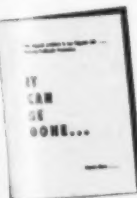


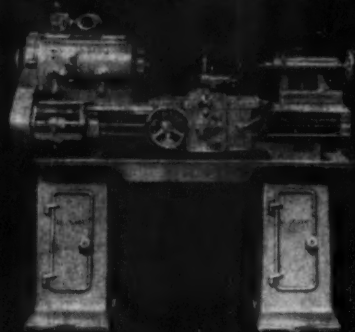
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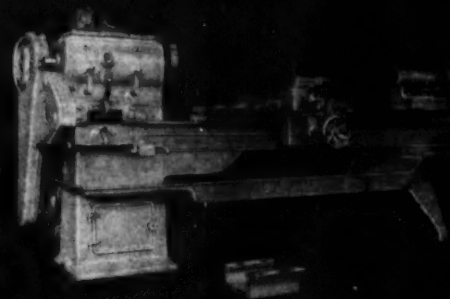
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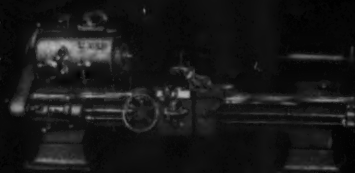




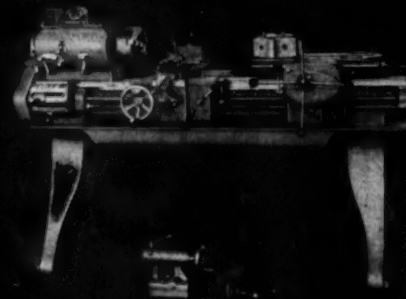
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